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Journal

of The AMERICAN DIETETIC ASSOCIATION

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Stepping Stones to the

Golden Anniversary White House Conference on Children and Youth

MURIEL G. WAGNER and ICIE MACY HOOBLER, Ph.D., Sc.D.

The Merrill-Palmer School, Detroit

A PROFESSION grows only as the vision of its membership helps to shape its goals and support them. Throughout forty-two years of existence, our Association has shared the interest of allied professional groups in the mental and physical well-being of mothers and children. The dietitian has given of her time and effort to promote healthier living for more people through optimal nutrition. The dietitian in the hospital, who encourages the pregnant woman to eat the foods she needs; the dietitian in the school lunch program, who motivates the teenage girl to improve her food habits; the nutritionist who teaches the homemaker to provide meals to meet her family's needs; the university instructor, who imbues soon-to-be teachers with the importance of the relationship between nutrition and health; the research worker, who surveys the food habits of families in rural areas—all are contributing to maternal and child health for present and future generations.

It is apparent, then, that the White House Conferences on Children and Youth should be of more than passing interest to the dietetic profession. At first glance, these conferences would seem to have served a single purpose—to sensitize the professional worker to the mental and physical needs of children. Their significance is, however, decidedly more profound. The results of each conference have permeated the American system of social values. The characteristic creative thinking in a multi-disciplinary setting has resulted in ideas which have been promulgated into a philosophy concerning the welfare of children.

The First Two Conferences

The first conference, called in 1909 by President Theodore Roosevelt, considered the then-novel idea that the need of the homeless child was for a home, not an institution. The development of our modern foster-home movement and the provision of allowances for dependent children were stimulated by this idea. Specific recommendations resulted in the formation of the United States Children's Bureau of the Department of Labor, which would be concerned with "the welfare of children and child life among all classes of our people."

The second conference, called in 1919 by President Wilson, was a culmination of "Children's Year" and a recognition of the inspired leadership of the newly established Children's Bureau. That year the scope of the conference was enlarged to include five sections: economic and social bases for child welfare standards; child labor; health of children and mothers; children in need of special care; and standardization of child welfare laws. The first standards for child welfare and health were formulated, standards which still influence the social and legislative protection of children in this country.

The Conference of 1930

President Hoover called the third conference in 1930, the White House Conference on Child Health and Protection. That year the scope of the conference was enlarged to include *all* children, not only the dependent child. Special emphasis was placed on an exploration of the sociocultural environment of the child. The aims of the conference were to find facts, to define standards, and to recommend changes wherever needed for the betterment of child life.

The thirty-two-volume comprehensive report of the proceedings of that conference contain the most complete and scientifically documented analysis of the knowledge of children ever made in the United States. Nineteen recommendations of the conference were embodied in the "Children's Charter"—a guidepost for many years to come. This document recognized "the rights of the child as the first

rights of citizenship" and pledged support to these aims. Following the 1930 White House Conference on Children, some private groups started notable studies which today are yielding fundamental facts; others in the medical profession have worked to bring greater protection to mothers and were responsible for drawing up the "Mother's Charter."

Much of our knowledge today about the normal healthy child is a result of this stimulus to thought and action. Pediatrics and obstetrics, nutrition, dentistry, psychology, sociology, and education opened their avenues of investigation to provide a multidisciplinary framework for the study of child development which has been initiated on a longitudinal basis by private groups throughout the country. The roots of today's prenatal, well-baby, and well-child clinics were nurtured by this concern over the health of children and mothers.

The Fourth Conference

In 1939, President Roosevelt called the "White House Conference on Children in a Democracy," the fourth in the series. This conference addressed itself to the interests of all children of the nation and to every aspect of child welfare, including home life, material security, education, health, and general preparation for the responsibilities of citizenship. This conference, like its predecessors, was noble of purpose—a call to action by the President "to do now those things that can be done now and to plan those that must be left for the morrow."

Unfortunately, this call came too late to benefit many of the young people who had reached or were approaching military age. The nation was shocked to learn that the children who had been nutritionally handicapped in 1930 were still carrying these incapacities when examined as the prospective soldiers of World War II. Had action been taken on the recommendations of the 1930 White House Conference on Child Health and Protection, it would have been necessary to train soldiers rather than nutritionally recondition men at large government expense. Thus the nation learned a bitter lesson—that the job of building health, strength, and stamina begins with prenatal life and extends throughout the life span.

The National Nutrition Council for Defense, established by President Roosevelt in 1941, implemented the recommendations of the 1940 conference. Leadership and advisory service for the formation of a national nutrition policy and action program to function not only in the war but in the subsequent peace was provided through the establishment of the Food and Nutrition Board of the National Research Council–National Academy of Science. This group is composed of food and nutrition specialists from industry, science, and agriculture. The resultant Recommended Dietary Allowances utilized many of the facts assembled by the White House Conference in defining our professional goal of optimal nutrition.

The Mid-Century Conference

In 1951, the Mid-Century Conference, the fifth of the Children's Conferences, was called by President Truman. This meeting re-emphasized the growth and development of children, especially with respect to mental, emotional, and spiritual values. The "Statement on Nutrition" acknowledged the tremendous strides made in the knowledge of nutrition over the decade and pointed to areas in which further research and application of research were needed. Particular emphasis was placed on nutrition education and the factors which affect food habits.

The Golden Anniversary Conference

Like the beginning of the last five decades of this century, 1960 will usher in another White House Conference—the "Golden Anniversary White House Conference on Children and Youth." From March 27

The Mother's Charter*

THE DEFENSE OF MOTHERS IS THE DEFENSE OF NATIONS

Every potential mother envisions the pleasures and obligations of creating and sustaining new life and is entitled to health and protection for the benefit of herself and humanity and should have:

I The inherent right to be well born without inherited or transmitted defect or disease.
II The inalienable right to protection from disease and harmful influences during early infancy, infancy, and childhood, and to full development.
III The opportunity to learn and know herself during adolescence and maturity and to acquire a knowledge of the origin and significance of human life.
IV The right to protection from pitfalls of married life and to a knowledge of its significance to herself and her potential family.
V The privilege of proper premarital and preconceptional medical examination and advice and care for herself and her mate.
VI The right of proper and adequate care during pregnancy.
VII The right to receive adequate and necessary care during labor in her home or hospital.
VIII The right to have appropriate care following labor in her home or hospital.
IX The right to secure proper and continuing subsequent care for herself and baby.
X The right of preservation of health and life and happiness for herself and family.
Approved by the American Committee on Maternal Welfare, June 4, 1941.

The Children's Charter

PRESIDENT HOOVER'S WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION, RECOGNIZING THE RIGHTS OF THE CHILD AS THE FIRST RIGHTS OF CITIZENSHIP, PLEDGES ITSELF TO THESE AIMS FOR THE CHILDREN OF AMERICA

FOR every child spiritual and moral training to help him to stand firm under the pressure of life

II For every child understanding and the guarding of his personality as his most precious right

III For every child a home and that love and security which a home provides, and for that child who must receive foster care, the nearest substitute for his own home

IV For every child full preparation for his birth, his mother receiving prenatal, natal, and postnatal care, and the establishment of such protective measures as will make child-bearing safer

V For every child health protection from birth through adolescence, including periodical health examinations and, where needed, care of specialists and hospital treatment, regular dental examinations and care of the teeth, protective and preventive measures against communicable diseases, the insuring of pure food, pure milk, and pure water

VI For every child from birth through adolescence, promotion of health, including health instruction and a health program, wholesome physical and mental recreation, with teachers and leaders adequately trained

VII For every child a dwelling-place, safe, sanitary, and wholesome, with reasonable provisions for privacy, free from conditions which tend to thwart his development; and a home environment harmonious and enriching

VIII For every child a school which is safe from hazards, sanitary, properly equipped, lighted, and ventilated. For younger children nursery schools and kindergartens to supplement home care.

IX For every child a community which recognizes and plans for his needs, protects him against physical dangers, moral hazards, and disease; provides him with safe and wholesome places for play and recreation; and makes provision for his cultural and social needs

X For every child an education which, through the discovery and development of his individual abilities, prepares him for life; and through training and vocational guidance prepares him for a living which will yield him the maximum of satisfaction

XI For every child such teaching and training as will prepare him for successful parenthood, homemaking, and the rights of citizenship; and, for parents, supplementary training to fit them to deal wisely with the problems of parenthood

XII For every child education for safety and protection against accidents to which modern conditions subject him—those to which he is directly exposed and those which, through loss or maiming of his parents, affect him indirectly

XIII For every child who is blind, deaf, crippled, or otherwise physically handicapped, and for the child who is mentally handicapped, such measures as will early discover and diagnose his handicap, provide care and treatment, and so train him that he may become an asset to society rather than a liability. Expenses of these services should be borne publicly where they cannot be privately met

XIV For every child who is in conflict with society the right to be dealt with intelligently as society's charge, not society's outcast, with the home, the school, the church, the court and the institution when needed, shaped to return him whenever possible to the normal stream of life

XV For every child the right to grow up in a family with an adequate standard of living and the security of a stable income as the surest safeguard against social handicaps

XVI For every child protection against labor that stunts growth, either physical or mental, that limits education, that deprives children of the right of comradeship, of play, and of joy.

XVII For every rural child as satisfactory schooling and health services as for the city child, and an extension to rural families of social, recreational, and cultural facilities

XVIII To supplement the home and the school in the training of youth, and to return to them those interests of which modern life tends to cheat children, every stimulation and encouragement should be given to the extension and development of the voluntary youth organizations

XIX To make everywhere available these minimum protections of the health and welfare of children, there should be a district, county, or community organization for health, education, and welfare, with full-time officials, coordinating with a state-wide program which will be responsive to a nation-wide service of general information, statistics, and scientific research. This should include:

(a) Trained, full-time public health officials, with public health nurses, sanitary inspection, and laboratory workers
(b) Available hospital beds
(c) Full-time public welfare service for the relief, aid, and guidance of children in special need due to poverty, misfortune, or behavior difficulties, and for the protection of children from abuse, neglect, exploitation, or moral hazard

FOR EVERY CHILD THESE RIGHTS, REGARDLESS OF RACE, OR COLOR, OR SITUATION, WHEREVER HE MAY LIVE UNDER THE PROTECTION OF THE AMERICAN FLAG

to April 2, over seven thousand people will meet in Washington, D.C., to discuss the "ways of promoting opportunities for children and youth to realize their full potential for a creative life in freedom and dignity."

The over-all program structure adopted by the Executive Committee for the 1960 conference expresses two important aims: (a) to achieve interdisciplinary treatment of conference theme and material and (b) to make it possible for people to meet, to discuss findings, and to reach conclusions in small intimate work groups. State committees have been diligently preparing priority concerns for discussion for over a year.

The concern most frequently mentioned is the treatment, rehabilitation, and education of handicapped children. Juvenile delinquency ranks almost as high among major problems. Next in frequency of mention is the need to expand employment opportunities for middle-adolescents and to improve guidance services and vocational training. Education is the fourth point of concern among the states reporting. The expansion and improvement of welfare services also has high priority on the agenda.

Before attending conference sessions in Washington next March, each delegate will have an opportunity to brief himself on background data and points of view relevant to the conference program. When he registers at the conference, he will receive a working paper prepared for the use of the work group in which he is enrolled. There will be about fifty working papers, each relevant to the topic of four or five working groups and written by specialists in a variety of fields. As further background material, the data-gathering now in process by state committees will be compiled and edited in a single volume. Similarly, the work of national organizations will be reflected in the materials they are forwarding to conference headquarters which will be put into a summary report volume.

Dr. Ercel Eppright has prepared a bibliography of articles taken from the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION which deal directly with children and relate to matters of importance to the health of the nation's population. Through the classification of the articles, one can ascertain areas which have received major emphasis and areas needing more attention. This over-view of publications includes bibliographic references to research reports, original articles, and critical reviews which have appeared in the JOURNAL (1).

The contribution of The American Dietetic Association during the last ten years to fields relevant to the conference will be reflected in a summary report volume published by the conference group. The Studies Committee of the conference has also planned a prospectus of research recommendations for the coming decade which will be a part of the general summary of the conference.

Previous White House Children's Conferences have clearly indicated that the answer to a brighter future for tomorrow's children cannot evolve within one discipline. The combined efforts of many professional groups are needed for effective formulation and operation of preventive health programs. We have scarcely scratched the surface of the benefits of multidisciplinary teaching and research. The resultant stimulation to our creative thinking within this larger frame of reference can provide impetus for expanding the scope of the entire dietetic profession.

At the conference, eight delegates will speak for over 13,000 of us who are members of The American Dietetic Association. They are asking us to share an unparalleled opportunity to shape nutrition programs of the future by participating with committees at the local and state levels. Can we afford to turn down the opportunity? Our heritage of progress, which is predicated on a constant process of evaluation, creative thinking, and implementation of new ideas, gives us the answer.

Reference

(1) A.D.A.'s concern for children and youth. J. Am. Dietet. A. 35: 1286, 1959.

Use Caution with Unsaturated Fatty Acids

Radical dietary changes, such as increasing the intake of unsaturated fatty acids, should not be made until all the facts are known, according to Dr. M. K. Horwitt, Elgin State Hospital, Elgin, Illinois. At a symposium, co-sponsored by Tulane University School of Medicine and The National Vitamin Foundation, in New Orleans on October 16, Dr. Horwitt reported that the lipid composition of the brain, the red blood cell, and presumably other vital tissues can be altered by dietary means, causing pathologic changes.

Feeding lipids high in linoleic acid increases the need for tocopherol (vitamin E). Although most lipids high in linoleic acid are also high in tocopherol, tissue tocopherol may be stored less efficiently than tissue linoleic acid, leaving a tocopherol deficit when linoleic acid intake is abnormally high.

In chicks, vitamin E deficiency causes a form of brain damage known as encephalomalacia. High-linoleic acid feedings, without supplementary tocopherol, also produces chick encephalomalacia. At least one case of this brain damage in human beings has been recorded—in an infant, due to feedings high in unsaturated fatty acids without supplementary vitamin E.

Bases for Concern about Teenagers' Diets[1]

GLADYS J. EVERSON, Ph.D.

Professor of Nutrition,
University of California,
Davis

THE eating habits of teen-agers (close to 12 million persons for the United States) have been of concern to many teachers, school lunch operators, parents, dietitians, and physicians. There is little question that this age group as a whole practices limited judgment in the choice of total food eaten. We are all familiar with some striking exceptions to this pattern, but for the most part, the dietary record of the teenager is not good, and this is particularly true in the case of girls. Too often, foods providing mainly energy serve as mid-meal snacks, so that when a well planned menu awaits at home or at school, it is not always received enthusiastically. Frequently such well planned meals are not available.

The extent to which the food pattern is poor is known to differ with the age of children, the younger child more nearly meeting a recommended intake of essential nutrients. This difference seems to be a matter of the independence of the child, the number of meals he eats away from home, and his social habits. It is the late teenager about whom we should be most concerned, especially that group of young girls who marry early.

Some of the shortcomings in the diets of the adolescent are as follows: too little calcium due to a low consumption of milk; insufficient intake of green and yellow vegetables and fruits, resulting in sub-optimal supplies of vitamin A; too little ascorbic acid; and questionable provision for an amino acid mixture which will support optimal health. In the case of the amino acid intake, this may not be as much a matter of protein intake per 24 hr. as it is irregular eating habits, omitting breakfast, and poor distribution of protein throughout the day. The teenager is known to enjoy meat, but he doesn't always do a good job of providing a regular mixture of amino acids for most advantageous body use.

A portion of the adolescent population has troubles of overweightness. This state frequently is seen among children who choose high-carbohydrate foods, with the result that they become hungry often and continue to eat several times a day to satisfy their hunger. Another segment of the group is seriously below ideal weight.

What evidences do we have that malnutrition exists among adolescents? What handicaps or illnesses can be singled out which permit us to say, "These are the result of poor food habits of the teenage group"? Those of you who have been directly involved in nutrition research appreciate how difficult it is to say, "This is the point at which the individual becomes handicapped by his poor choice of food." We are impressed with vast differences in appearance of teenagers, from the boy or girl who has almost uncontrollable energy and who looks "the picture of health" to the apathetic and listless child with little pep. We see great differences in enthusiasm for work and study on the part of this group. But to turn to specific effects of the continued use of diets typical of many teenagers is difficult. Evaluation of nutritional status of man still requires a great deal more investigation.

I would like to mention two problems of some magnitude which should be kept in mind when one considers the need for improved nutrition among adolescents.

High Incidence of Tuberculosis

One is the high incidence of tuberculosis in this age group. Quoting from a report of the League of Nations (1) concerning the development of the re-infective type of tuberculosis, we find:

> All authorities . . . are agreed . . . that under normal conditions of life, [adolescence] is one of the most crucial periods. . . . This is the age when the most serious cases of pulmonary tuberculosis occur. Every tuberculosis specialist is convinced that the appearance of tuberculosis before the twentieth year is due to two causes, overwork and malnutrition.
>
> Although the general incidence of tuberculosis has been decreasing in many countries gradually during the past 100 years and especially during the past thirty years, it is a distressing fact that this rate of reduction does not occur to the same extent in the

[1]Presented at the 42nd Annual Meeting of The American Dietetic Association in Los Angeles, on August 27, 1959.

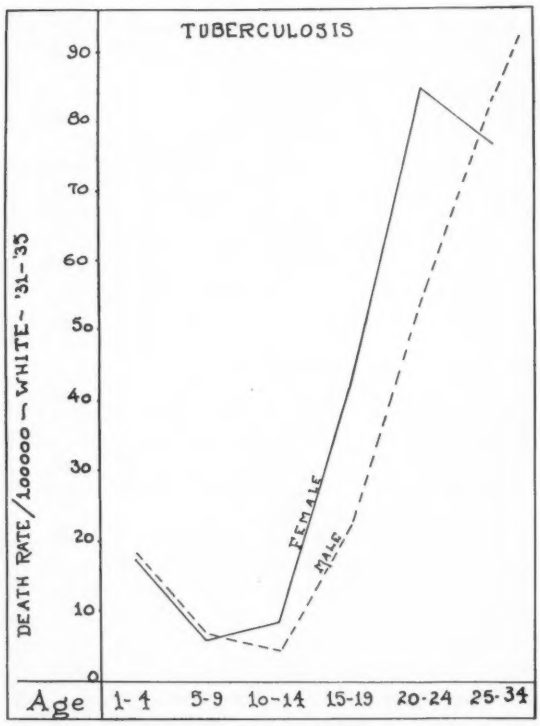

FIG. 1. *Mortality rates in tuberculosis. Note the sharp rise in adolescence, the increase occurring first in the female, corresponding with the sex differences in pubertal phenomena. Data from League of Nations' Mixed Committee for the Study of Problems of Nutrition* (1); *reprinted from Johnston* (2).

case of adolescent and young adult people [Figure 1]. Indeed, in young women there has been an increase in tuberculosis during recent years in some countries. This state of affairs has been ascribed by some to the modern habit of "slimming," and by others to the greater expenditure dictated by modern habits of life on clothes, which leaves too little money for the purchase of proper food.

This association of poor nutrition with tuberculosis has been explored in considerable detail in this country by Johnston of Henry Ford Hospital, Detroit (2). His work has dealt primarily with the relationship of nitrogen and calcium balance to development of disease and the speed of healing when an active state of disease is identified. His research has included many studies of the influence of hormones on both nitrogen and calcium retention in adolescent subjects. While the full relationship between onset of tuberculosis or re-infection and malnutrition is not known, the seriousness of the problem makes each of us wish to see improvement in nutrition education and practices for this age group.

Complications of Pregnancy

A second important medical problem associated with faulty diets of teenagers is the incidence of com-

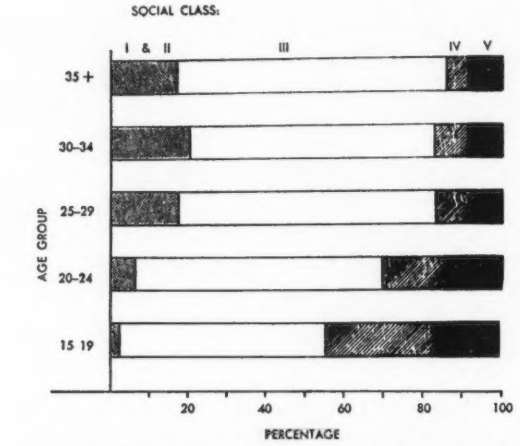

FIG. 2. *Distribution of primigravidae in Aberdeen arranged by socio-economic group of husband and by age group. Highest socio-economic group is denoted by Roman I. Data from Baird* et al. (6); *reprinted from Cuthbertson* (4).

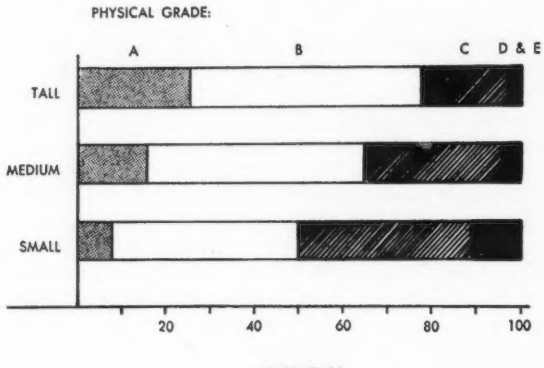

FIG. 3. *Primigravidae grouped by physical grade (A to E) and by height. Good positive correlation may be seen between height and physical grade. Data from Baird* et al. (6); *reprinted from Cuthbertson* (4).

plications of pregnancy and the birth of defective infants among teenage mothers. Stearns at the State University of Iowa has summed up the situation as follows (3):

> The girl who marries during her mid-teens is apt to be a girl poorly nourished through most of her lifetime and to be equally ill-equipped to meet the many psychological problems inherent in establishing a successful marriage and the new family. It is not surprising, therefore, that she is the least successful mother in producing a healthy full-term infant. These young adolescent girls greatly need counseling in nutrition and in the whole area of preparation for successful family life.

This same viewpoint is expressed by Cuthbertson of The Rowett Research Institute in Scotland in speaking of British records (4). Almost half of the adolescent pregnant girls come from the lowest two social classes; these young mothers are generally small in stature and their physical ratings are low.

This age group also shows a high incidence of pre-eclampsia of pregnancy, and stillbirths and malformations occur in increased numbers among their first infants (Table 1, Figures 2 and 3).

We hear repeatedly that adolescence is the period of stress. What are some of the changes which occur at this age? How much do they influence nutrient needs? What, then, is the basis for concern about the food habits of teenagers? First, this is a period of accelerated growth, causing high nutritional requirements of certain factors (7). Second, this is a period marked by inefficient use of certain important substances because of the frequency and magnitude of emotional problems often facing the teen-ager (8).

The Teen-Age Growth Spurt

To illustrate the extent of the growth spurt during the teenage period, we have the data of Richey (9) (Figure 4) on growth records of boys and girls maturing at different ages. Bayley's records (10) on the average increase in height of boys, show a maximum growth in height at 14.5 years, amounting to 3.5 in. annually (Figure 5). Another important approach has been the longitudinal studies of Macy at the Children's Fund of Michigan, Detroit, which included X-ray studies of the bone along with balance data for minerals and nitrogen (11).

Each of these studies reveals that a decided increase in growth occurs during adolescence, with an accompanying need for improvement in the nutrient supply. The actual age at which maximum growth occurs differs among individuals. The data of Stearns and her colleagues dealing with the storage of calcium over the total growth period bring out clearly to what extent rapid growth increases calcium needs (8) (Figure 6).

When the diet of the teenager is known to have been good over an extended period prior to test studies, such children are capable of storing maximum amounts of calcium for their age immediately. This retention of calcium continues as long as a satisfactory diet is provided (Figure 7). However, individuals who have had poor diets for a long time do not respond rapidly to improved nutrition. Apparently the mechanism controlling absorption of calcium is not functioning at its best, and several months of careful eating may be necessary before

TABLE 1 Age of women and outcome of pregnancy

AGE OF WOMAN	STILLBIRTHS ATTRIBUTED TO PRE-ECLAMPSIA PER 1000 FIRST BIRTHS	STILLBIRTHS PER 1000 FIRST MATERNITIES WITH SEVERE PRE-ECLAMPSIA	INCIDENCE OF SEVERE PRE-ECLAMPSIA PER 100 FIRST MATERNITIES
Under 20 years	7.5	92	4.4
20 to 24 years	2.8	27	4.2
25 to 29 years	4.2	65	5.4
30 to 34 years	9.2	179	5.2
35 years and over	19.0	290	4.9

*Original data taken from Nelson (5) and Baird *et al.* (6); reprinted from Cuthbertson (4).

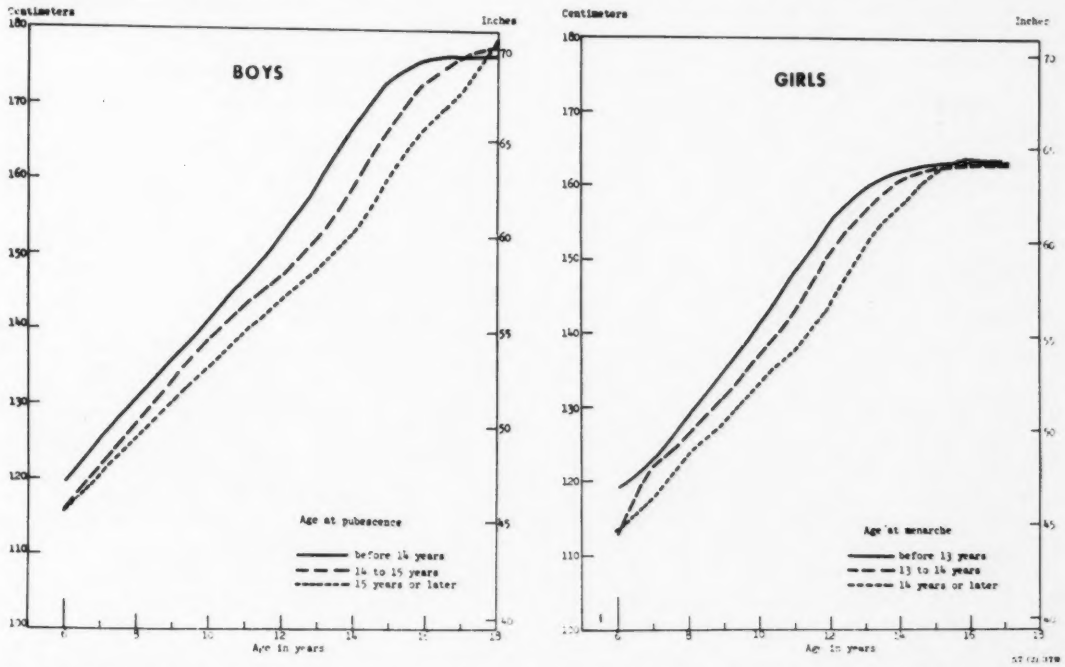

FIG. 4. *Relationship of heights of boys and girls to age at pubescence or menarche. Richey's (9) data as published by Hathaway (7).*

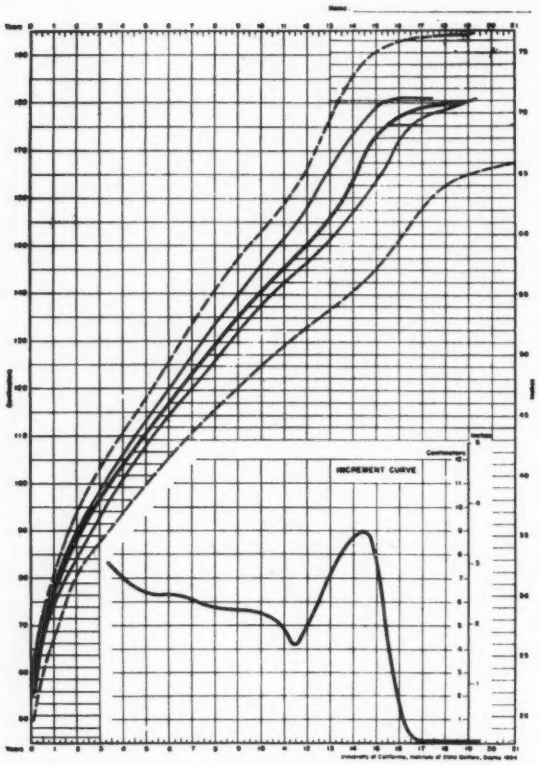

FIG. 5. *Bayley's* (10) *data relating heights of boys to rate of physical maturation. Maximum increase in boys' height occurs at 14.5 years and is equal to 3.5 in. a year; for girls, it occurs at 11.5 years and is approximately 3 in. annually. Reprinted from Hathaway* (7).

maximum calcium utilization is re-established. According to Stearns (12), this situation is more critical for the older child. In the case of younger children, recognizable deficiences can be overcome in six weeks to two months. For most adolescent children, the time is more apt to be six months following the initiation of improved diets. Nitrogen storage does not behave in a similar manner (12) (Figure 8).

Effect of Emotions

In addition to the influence of previous dietary habits on the capacity of the teenager to use nutrients effectively, Stearns and her associates have also noted a marked difference in calcium storage during periods of great emotional stress (Figure 9). Stearns believes that the emotional state has a direct effect on the metabolism of young girls. The many problems facing young women as they take over the responsibilities of maintaining a home, often on small incomes and frequently confronted with early pregnancies, lead to inefficient storage of nutrients, particularly of calcium.

While pregnancy *per se* does not influence calcium

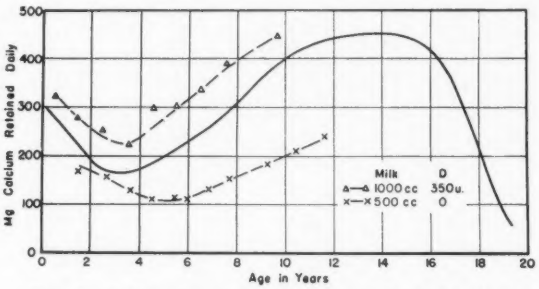

FIG. 6. *Calcium retention considered desirable during each year of growth. Data from Stearns* (8).

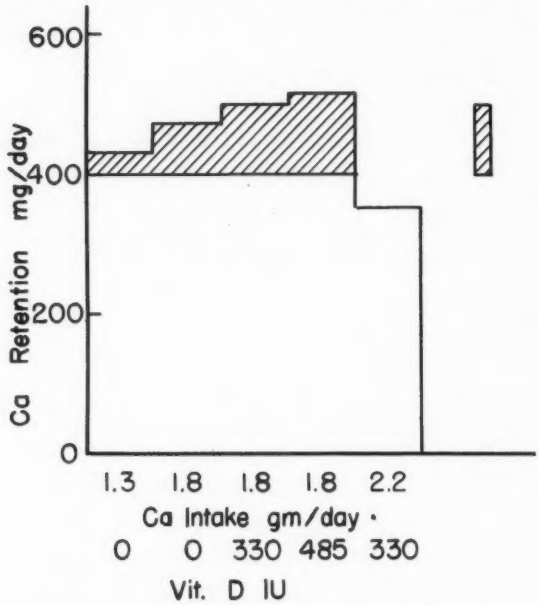

FIG. 7. *Calcium retention of children known to be well nourished. Original data provided by Stearns* (12). *All rights reserved by Genevieve Stearns.*

storage adversely (as the contrary has been found true), emotional stress during pregnancy may seriously impair calcium utilization. An illustration of this situation is shown for Subject C.B., fourteen years of age (Figure 9). This girl was a ward of the court, frightened, resentful of her pregnant condition, and generally disturbed. She made poor use of the calcium provided by a very good diet during a major part of the experimental studies. An even more disturbing record is revealed for Subject M.A., twenty-one years old. She was a young college student who had refused to tell her parents about her pregnancy, and the father of her baby had rejected her. As this graph illustrates, she was in severe negative calcium balance during a considerable portion of her pregnancy (12). While these scattered illustrations have been examples of unpleasant emotional stress, excess of a pleasant type is known

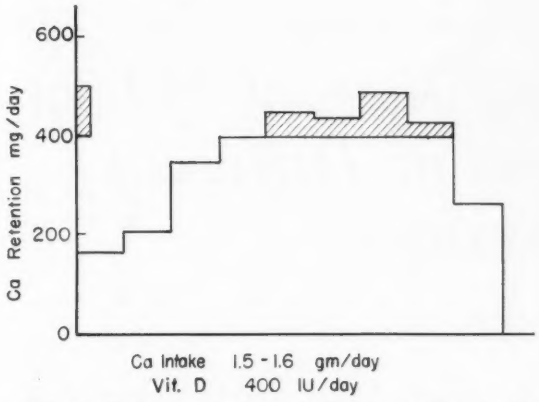

FIG. 8. *Calcium retention of children known to be poorly nourished. Original data from Stearns* (12). *All rights reserved by Genevieve Stearns.*

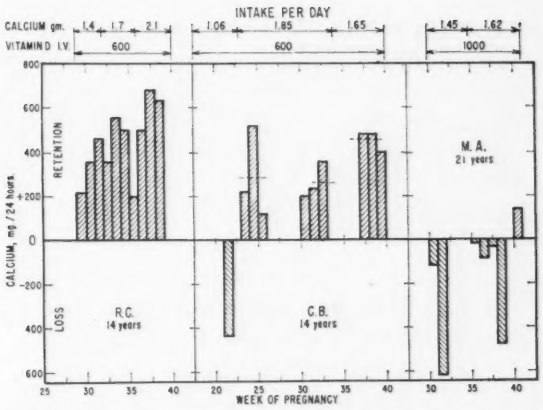

FIG. 9. *Calcium balance of pregnant women, illustrating the influence of emotional stress on metabolism. Subject R.C. was considered emotionally secure and Subjects C.B., and M.A., emotionally disturbed. Original data from Stearns* (12). *All rights reserved by Genevieve Stearns.*

also to produce an adverse influence on calcium utilization.

In conclusion, one might say that the teenage period, particularly for girls, is an important stage of the life cycle in which to have good food practices in effect. We certainly need expansion in our programs encouraging better nutrition in our schools and among parent and youth groups. As an organization, The American Dietetic Association can do much to bring about better nutrition for teenagers.

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Forecast of Hospital Needs

By 1985, the nation will need more than twice its present number of hospital beds just to meet the health needs produced by our population growth, according to Thomas G. Murdough, President, American Hospital Supply Corporation. Actually, demand will undoubtedly be even higher, he feels, due to more older people, higher educational levels, continuing population shifts from farm to city, rising income levels, and more persons holding prepayment hospital insurance. Even today, 74 per cent of our population is covered by such insurance.

Nutriture of School Girls of Different Physiques[1]

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A SURVEY OF the nutritional status of Iowa school children by Eppright *et al.* (1) indicated that 17 per cent of the girls and 11 per cent of the boys were very heavy or obese, according to classification on the Wetzel grid. Mean caloric values for food intakes of heavy girls at all ages and for heavy boys over twelve years old were less than for children of medium body build. Both Fry (2) and Peckos (3) found this same inverse relationship between body size and the energy value of diets in their studies of "obese" children at the Forsyth Dental Infirmary for Children in Boston. Johnson *et al.* (4) observed a similar relationship between food energy intake and body size in their study of a group of high school girls near Boston. Earlier, Wiehl (5) had made the same observation in a group of high school boys and girls in New York City.

The present study of nutriture of school girls between seven and thirteen years of age was undertaken in an effort to distinguish characteristics in which school girls of very heavy physique differed from those of medium physique. The findings reported by Eppright *et al.* in 1956 (1) were obtained by the survey or cross-sectional technique; the present study included repeated measurements of a smaller number of subjects at intervals during three years.

Methods and Procedures

The nutritional status of 183 girls in four consolidated schools in Story County, Iowa, was studied over a period of three years. Sixty-six per cent of the families represented by the 183 girls lived on farms; 4 per cent lived in rural non-farm locations; and 30 per cent lived in small towns.

The girls were weighed and measured in November, 1953, and again in April and September, 1954, and their weights and heights were plotted on the Wetzel grid. On the basis of these plottings, 151 of the 183 girls remained in the same physique groups during the first year of observation: 27 in the very heavy or obese group (channels A_4 and A_3), 96 in the medium group (channels A_2, A_1, M and B_1), and 28 in the thin group (channels B_2, B_3, and B_4). The remaining 32 girls moved from one group to another during the year.

For this study, 27 girls who remained in the heavy group during the year following November, 1953 were matched with 27 girls who remained in the medium group during this period, on the basis of height (within 1 in.) and age (within six months). The age distribution of the 27 girls of medium physique was somewhat different from that of all 96 girls in this physique group, but the differences were not significant at the 10 per cent level; their mean height was 1.1 in. above that of all girls of medium physique in November, 1953, and 1.6 in. greater in April, 1956.

At intervals throughout the study, height was measured to the nearest tenth of an inch and weight to the nearest half pound. Measurements of skinfold thickness were made with a Glogau vernier caliper four times during the study. Skinfolds were measured on the left lower chest and in the left subscapular area on the back.

In an effort to obtain dietary records representative of the entire year rather than of one season, the girls were asked to keep two-day records of their food intakes several times each year. The Agriculture Handbook No. 8 (6) was used for calculating the caloric value of the daily food records.

Four times during the investigation each girl recorded her physical activity for one day. This record

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TABLE 1 **Height and weight gains by Iowa school girls in two physique groups during three-year period**

TIME INTERVAL	WEIGHT CHANGE		HEIGHT GAIN	
	Mean	Range	Mean	Range
	Heavy and Obese Girls			
	lb.	*lb.*	*in.*	*in.*
November 1953 to April 1954	7.3	− 3-31	1.0	0.1-4.1
April to September 1954	3.8	− 6-31	1.0	0.1-1.7
September 1954 to April 1955	9.3	−11-21	1.4	0.4-2.4
April to September 1955	1.1	− 8- 9	0.7	0 -1.4
September 1955 to April 1956	8.2	−23-23	0.8	0 -2.0
April to October 1956	3.2	−35-20	0.9	0.1-2.0
	Medium-Physique Girls			
November 1953 to April 1954	1.9	− 1- 7	0.9	0 -1.5
April to September 1954	3.7	− 3-13	1.2	0.2-2.2
September 1954 to April 1955	9.9	− 1-15	1.5	0.4-2.1
April to September 1955	1.1	− 5- 8	0.9	0 -1.9
September 1955 to April 1956	10.9	1-18	1.2	0 -2.3
April to October 1956	4.4	− 5-20	1.0	0 -2.3

included information on time spent sleeping and in various activities before school, during school, at recess, at lunch time, and after school.

Seven times during the investigation, blood samples were taken and were analyzed by microchemical methods for hemoglobin, serum carotenoids, serum ascorbic acid, and serum alkaline phosphatase.

Results

The mean increase in weight over three years was essentially the same for the groups of girls of two different physiques. However, when mean weight gains for the two groups during intervals of approximately six months were compared, it appeared that the heavy girls gained more weight than the medium-sized girls during the first interval, but that the medium-sized girls gained more during the fifth and sixth intervals (Table 1). Gains during the winter months exceeded those during the summer except for the "medium" girls during the first interval.

Although the two groups were matched in height at the beginning of the study, after three years the medium girls averaged 1 in. taller than the heavy girls. Mean increases in height during six-month intervals are shown in Table 1.

The mean thickness of skinfolds at each measurement for the two physique groups is shown in Table 2. Obviously the heavy girls had a larger amount of subcutaneous body fat.

Age at menarche is probably the most widely used criterion of physiologic maturity in girls. Data about menarche, obtained at the end of two and a half and four years, are summarized in Table 3. They support the generally accepted thesis that heavy girls are likely to mature earlier than thinner ones.

The mean caloric values of diets of the two groups of girls were estimated in two ways: (a) from caloric values of foods listed in dietary records obtained from the girls for four days in the spring of 1954, twelve days during the 1954-55 school year, and ten days during the 1955-56 school year; and (b) from nutritional histories obtained during the late summer and fall of 1956. The mean values and standard deviations shown in Table 4 indicate that caloric values estimated from nutritional histories

TABLE 2 **Skinfold thickness of Iowa school girls in two physique groups**

DATE OF MEASUREMENT	FRONT SKINFOLD		BACK SKINFOLD	
	Mean	Range	Mean	Range
	Heavy and Obese Girls			
	cm.	*cm.*	*cm.*	*cm.*
November 1953	1.64	0.80—2.82	2.26	0.78—4.44
September 1954	1.51	0.90—2.29	2.15	0.80—3.69
September 1955	1.81	0.98—2.91	2.30	1.05—3.82
April 1956	1.57	0.96—2.26	2.02	1.12—3.20
	Medium-Physique Girls			
November 1953	0.86	0.46—1.40	1.01	0.53—1.74
September 1954	0.81	0.38—1.28	0.91	0.52—1.59
September 1955	1.08	0.44—1.83	1.27	0.72—1.99
April 1956	0.90	0.50—1.45	1.19	0.79—1.82

TABLE 3 Age at menarche for Iowa school girls in two physique groups

DATE	NUMBER REACHING MENARCHE	MEAN AGE AT MENARCHE		NUMBER REACHING MENARCHE BEFORE AGE TWELVE YEARS
		yr.	*months*	
Heavy and Obese Girls				
April 1956	15	12	1	....
September 1957	22	12	1	10
Medium-Physique Girls				
April 1956	13	12	7	....
September 1957	23	12	5	7

TABLE 4 Energy value of food eaten by Iowa school girls in two physique groups

DATE	MEAN CALORIES	
	24-hr. dietary record	Nutritional history
Heavy and Obese Girls		
Spring 1954 (4 days)	2009 ± 391*	....
1954-55 school year (12 days)	2110 ± 444	....
1955-56 school year (10 days)	2029 ± 474	....
August to December 1956	....	2515 ± 502
Medium-Physique Girls		
Spring 1954 (4 days)	1938 ± 422	....
1954-55 school year (12 days)	2192 ± 413	....
1955-56 school year (10 days)	2224 ± 632	....
August to December 1956	....	2749 449

*Standard deviation.

were distinctly higher than those based on dietary records. Mean energy values of the first two sets of diets reported in the two physique groups were similar; those of diets reported during the 1955-56 school year and those based on dietary histories were about 200 calories higher for girls of medium physique than for the heavy girls. A single mean food energy intake was calculated for each girl by averaging her twenty-six daily dietary records. An over-all mean obtained from these individual means differed by only about 100 calories for the two groups.

Food dislikes of the two groups were similar. Twenty-seven foods or food groups were listed as being disliked by one or more of the fifty-four girls. Foods most consistently disliked were dark green leafy vegetables, followed in order by squash, sweet potatoes, cottage cheese, canned tomatoes, and tomato juice. The other foods listed as disliked were common to only a few girls, and many were listed by only one girl.

The heavy girls averaged 9.5 hr. sleep, 10.1 hr. mild activity, 3.4 hr. moderate activity, and 1.0 hr. vigorous activity per day. The means for the girls of medium physique were similar: 9.8 hr. sleep, 10.0 hr. mild activity, 3.0 hr. moderate activity, and 1.0 hr. vigorous activity.

Mean values and ranges for blood hemoglobin, serum ascorbic acid, serum carotenoids, and serum alkaline phosphatase are shown in Table 5. Similar mean values were found for the two physique groups for blood hemoglobin, serum ascorbic acid, and serum carotenoids. Differences between the two groups in mean concentrations of serum alkaline phosphatase were statistically significant.

Discussion

Without exception, the twenty-seven girls classified as heavy or obese according to the Wetzel Grid were also classified as stocky or obese on the Jackson and Kelly growth chart (7). Body fat appeared to be greater for the heavy girls as indicated by statistically significant differences in skinfold measurements for the two groups of girls. Thus, the group of twenty-seven heavy girls appeared to be described correctly as heavy or obese subjects.

Those girls in the heavy and obese group who had reached menarche had reached it, on the average, about four months ahead of those in the medium group. Alkaline phosphatase values were lower for heavy girls than for medium ones. Both these observations indicated earlier maturity for the heavy or obese girls. Girls who are heavy for their height and age have frequently been reported as early maturers (8-12).

One question asked parents during the nutritional history interview was: "Does your daughter get tired easily?" In reply, parents of eight of the heavy girls answered in the affirmative, while parents of only four of the medium girls responded, "Yes." Two of the four medium girls thus described shifted to the heavy or obese classification on the Wetzel Grid during the three-year study period. The ease with which a child becomes fatigued may give some indication of the general quality of her growth, which may have been poorer for more of the heavy girls than for the girls of medium physique. Or, did the heavy girls get tired from the greater work required to carry their greater mass around?

Heavy girls were not consuming greater amounts of food or gaining more weight than the medium girls, on the average. The differences in physique could not be attributed to a difference in the amount or type of activity for girls in the two groups as estimated from activity records. Birth weights were very nearly the same for the two groups. When parents were questioned about their children's weight status at specified times, parents of only eight of the heavy girls considered their daughters to have been overweight before they started to school. Parents of six of the twenty-seven heavy girls thought their daughters had become overweight at approximately eight years of age; others had varying opinions about the age at which over-

TABLE 5 Blood hemoglobin, serum carotenoids, serum ascorbic acid, and serum alkaline phosphatase for Iowa school girls in two physique groups

PHYSIQUE GROUP	HEMOGLOBIN		SERUM ASCORBIC ACID		SERUM CAROTENOIDS		SERUM ALKALINE PHOSPHATASE	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
	gm./100 ml.		*mg./100 ml.*		*mcg./100 ml.*		*nitrophenol units*	
Heavy and obese	12.59	9.60—14.61	0.86	0.10—2.08	111.1	32.7—217.8	5.53	1.86—12.51
Medium	12.76	9.62—15.43	0.85	0.07—2.04	108.7	39.4—213.5	6.35	2.92—13.60

weight had first appeared. Thus, approximately half of the heavy girls were probably heavy by the time they were eight years old. The parents of only two girls of medium physique considered their daughters to have been overweight before they were eight years old.

Hemoglobin in the blood and ascorbic acid and carotenoids in the serum were not different in the two groups. In both physique groups, serum carotenoids were often low when serum ascorbic acid was low, but blood hemoglobin was satisfactory in all cases.

Thus, comparison of two groups of school girls of different body builds did not reveal factors contributing to differences in physique. Examination of six girls who changed physique during the three-year period, however, appeared to be somewhat more revealing.

Three of the twenty-seven girls originally classified as heavy or obese shifted to the medium group after the first year of the study, and three originally in the medium group shifted in the other direction. Each girl who changed from medium to heavy had skinfold measurements throughout the three years that were intermediate between the means for the heavy and medium groups. Skinfold measurements of two of the three girls who shifted in the other direction also were intermediate between mean values for the two groups. The remaining heavy girl, before she changed to the medium classification, had skinfold measurements above the mean for all heavy girls.

Decreases in energy value of food intakes were reported by two of the three girls during the period in which they shifted from heavy to medium physique. Increased energy value of food intake during the period when one of the medium girls moved into the heavy group may have been associated with her change in build. A gradual decrease in activity observed in records of activity on four different days during one year may account for the shift of another from the medium to the heavy group.

Bruch's (13) statement apparently applies:

> Reviewing the quantity of food consumed by obese children, one may conclude that the food intake is decidedly greater during periods of excessive weight increase. It is not necessarily different from that of normal children at times when the weight is stationary or is increasing at a normal rate, although the patient continues to be overweight.

Stearns (14) observed that obesity with overnutrition occurs, but not as commonly as obesity with malnutrition. Data from the study of these six girls agree, in part, with this observation: one of the girls who changed from the medium to the heavy group reported diets of good quality; a second reported diets of poor quality; and the third, diets between the two extremes. All three girls who changed from the heavy to the medium group recorded diets of good quality.

It has been suggested that girls frequently gain weight during the year after menarche. The girls in the heavy and obese group showed a large increment in weight between their twelfth and thirteenth birthdays, and many of them had reached menarche between their eleventh and twelfth birthdays. Of the girls who changed from the medium to the heavy group, two did so during the year after menarche; the three girls who changed from heavy to medium did so before menarche.

Summary

Of 183 Iowa school girls, seven to thirteen years of age who were studied over a period of three years, 27 remained in the very heavy or obese group on the Wetzel Grid (channels A_4 and A_3) during the first year. Twenty-seven girls of medium body build (channels A_2, A_1, M and B_1 on the Wetzel Grid) were matched with the heavy girls in height (within 1 in.) and age (within six months).

No significant differences were discovered between the two groups in characteristics that might be related to nutriture, i.e., caloric value of food intake, blood hemoglobin concentration, serum carotenoid and serum ascorbic acid concentrations, amount or type of activity, and weight increments over a three-year period.

Statistically significant differences between the two groups were seen in height increments over the three-year period and in alkaline phosphatase concentrations. Differences between mean age at menarche for the two groups suggested that girls in the heavy group were more mature physiologically than were the girls in the medium group.

Observations of six girls who changed physique type during the study indicated that comparisons of groups of girls during the periods in which they

shift from one physique type to another may be more informative than comparisons of groups who remain in one physique group.

From this study, it may be concluded that heavy and medium-sized girls are not necessarily eating widely different amounts of food or expending obviously different amounts of energy in activity. Their nutriture does not seem to be related to body build, unless stockiness or obesity is regarded as undesirable in itself.

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CALCIUM METABOLISM IN MEN

Forty-four physically active adult men, ages twenty to seventy-six years, who were confined in the State Prison in Oslo, Norway, were the subjects of an extensive study of calcium metabolism in adults. This study was reported by Dr. Ole J. Malm in "Calcium and Adaptation in Adult Men" (published in English by the Oslo University Press, 1958; also published as a supplement to Vol. 10, 1958, *Scandinavian Journal of Clinical and Laboratory Investigation).*

This research was carried out over four years at the Institute for Nutrition Research, University of Oslo. Dr. Malm acknowledges the help of Ingrid Askevold, Director, State Department of Home Economics, Oslo, in planning the experimental diet. Three research dietitians prepared and weighed the food. Whole milk and skim milk were the main sources of calcium. Dr. Malm believes that the men in this experiment are probably typical of Norwegian men in the lower income levels.

Since bone serves as a reservoir from which calcium may be drawn to keep blood calcium at an even keel, shortage of calcium in the adult diet causes no sudden dramatic symptoms. Today, a controversial subject is the question of whether a long-standing calcium lack causes or contributes to the demineralization of bone or "senile osteoporosis" frequently seen in aged persons. Dr. Malm's analysis of the ten cases of demineralization in his series indicates that a shortage of calcium in the diet was at least a contributing factor in causing the loss of mineral from bone. He estimates that a low-calcium diet with a consistent negative balance may cause demineralization without symptoms at the age of forty, with "full-blown senile osteoporosis" at the age of seventy or eighty.

Twenty-six of the men were studied on a low-calcium diet (450 mg. per day). Most of them were able to make some adaptation at this low level—that is, after a period of losing calcium from their bodies, they either lost less calcium or achieved calcium balance. However, about two-thirds were unable to retain enough calcium on the low intake to prevent net loss of skeletal calcium.

The reaction of these men to a given amount of dietary calcium was highly variable. Calcium retention could not be shown to be related to height, body weight, metabolic body size, surface area, or age. In two cases, Dr. Malm found suggestive evidence that emotional tension could depress calcium retention. (Dr. Malm is now associated with Walter Reed Army Medical Center, Washington, D.C.)—*Contributed by Marie Balsley, Nutritionist, Evaporated Milk Association, Chicago.*

The Teenage Clinic[1]

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TO US at the Teenage Clinic, the word "adolescent" does not mean problem, and it does not mean criminal or delinquent, as so many self-righteous—or worried—adults think today. Even teenagers themselves can be "taken in" by the derogatory opinions generally held about them. One scared fifteen-year-old boy, flat on his back and with a good part of his body in a cast after an automobile accident, told me he thought the definition of an adolescent was "somebody who's sick." Another teenager was seeing me monthly for checks on his typically adolescent orthopedic problem. Under his left knee, the upper part of his tibia had a tender swelling due to a destructive process in the growing end of this bone. This condition is known as osteochondrosis of the tibial tubercle, or, for short, "Osgood-Schlatter's disease." It sounds very organic and scientific, does it? Nevertheless, George asked me one day, "You're a head doctor, aren't you? Anybody who sees teenagers all the time would have to be a psychiatrist, wouldn't he?"

I do not consider adolescents to be odd-balls, delinquents, or diseased—any more than the rest of us are. Adolescents are people. People of all ages deserve good medical care. Although adolescents are coming out of childhood and are not quite to the point of growth and maturity that we call adulthood, they need and deserve and must be offered good preventive, diagnostic, and curative medical care. They need adequate and honest health education, through which they can achieve an understanding of good personal health and public health measures. If this is not done, the health and stability of our entire world will suffer.

There is a rapidly growing awareness that physicians and our co-workers in the allied health fields have not paid enough attention to the health needs of this important age group. Now, across the country, there are adolescent units and clinics, teenage clinics, youth clinics, high school clinics, and similar clinics with other names. Doctors on the staffs of medical schools are becoming interested in the special attributes and needs of this hitherto glossed-over age group. Some physicians who work in public health, some who work with small or large medical groups, and some who are in solo private practice are letting teenagers and their parents know that they are happy to have teenagers as patients.

The few of us who work exclusively with adolescents may be called "ephebiatricians" or "hebiatricians" (both words derived from Greek roots, meaning youth), or just teenagers' doctors.

We have found that an attitude of respect for the individual reaps the same reward that it does from a person of any age—a respectful response. With thousands of teenagers coming through our clinic doors, we have had no problems with noisy, rude, or destructive behavior. A few *parents* have jokingly asked, "Where are the sex magazines? This is a teenage clinic, isn't it?" The teenagers have hardly ever been "flip" with remarks in a similar vein.

The Clinic Routine

What have we been doing to secure the good health of teenagers in our offices?

First, we record a medical history, obtained in part from one or both parents and in part from the adolescent patient. We do this through separate interviews.

We make medical examinations. The result of the examination is usually a re-assurance that all is well. This takes care of many questions, some asked, some unasked. Every teenager has questions about his body and his bodily feelings during this time of rapid internal and external changes. Of course, there are a few cases in which trouble shows up during a physical examination before there are outward, bothersome symptoms. When this happens, early diagnosis and simple treatment can prevent long-term, depressing illness and the need for drastic forms of therapy. By having an examination during adolescence, one gets a better understanding of the wide range of normal variability of the human body, whether the variability be in height, weight, age of onset of puberty, distribution of the body curves,

[1]Presented at the 42nd Annual Meeting of The American Dietetic Association in Los Angeles, on August 27, 1959.

incidence of the pimples of acne, or the red or purple stripes that normally occur on the skin of adolescents. Swelling of one or both breasts in different stages of growing up into manhood or womanhood is another variable that may be quite frightening if not brought into proper perspective.

Teenage Food Habits

During the examination and interview, the physician has a chance to mention the values of good dental care and of visiting an eye specialist if indicated. There is also the opportunity to talk about the health aspects of such habits as smoking, drinking, and eating. We ask, "Do you eat meat, eggs, vegetables, fruits, cereal? How much milk do you drink each day? Do you eat too many sweets?" By our asking these questions and by the answers we obtain, we achieve a two-way communication and take part in a two-way educational process.

On the one hand, I, as physician, let the patient know that I consider the eating of a balanced diet important. I talk with him about the protein values of meats and eggs, about the ascorbic acid in oranges and tomatoes, about some of the values to a teenager of a diet rich in protein and not overloaded with calorie-rich, high-fat, high-carbohydrate foods. I can and do point out that the same type of good diet that is best to prevent needless dental drilling and expense will also keep the pimples and blackheads down to a minimum *and* keep the teenager from becoming a "fatty."

On the other hand, I have learned from the patients that most of them have a pretty good idea of what is right and what is wrong in their diets. The overwhelming majority get all they need in the way of nutrients from their diet. The glaring error, nutritionally, is *not* a lack of certain foods, but an overabundance of others. These others can be summed up in the words: sweets and high-fat snacks.

We have been surprised to learn that many teenagers consume 2 or 3 qt. milk a day. Why? "Because I like it."

We have learned that an important difference between teenagers and younger pediatric patients is that teenagers talk for themselves. They no longer must be spoken for by the mother. The doctor advises the teenager directly about what he may do for himself, whereas with the younger child the physician is advising someone else about what might be done.

We have learned that some teenagers can talk glibly; others are quite reserved. A good listener—and observer—one who can wait sometimes, always learns much more than an "expert" who rushes in with a detailed answer to a question before he learns what the questioner knows already or what the questioner *really* wants to discover.

Specific treatment needs for this age group include the extension of such accepted preventive health measures as tuberculin skin testing and immunization against polio, tetanus, diphtheria, and smallpox. Then, there are sicknesses that require diagnosis and treatment. First, the major and minor infections that anyone might get—teenagers may be healthy in some ways, but they do at times catch colds, bronchitis, tuberculosis, and many other infections. When to use an antibiotic is not determined by the age of the patient, but whether to insist on an injection when a pill might do as well is an important consideration for most teenagers. Diabetes means insulin shots and dietary restrictions—and also an understanding of the possible causes and effects of normal teenage rebellion against adult authority. A diabetic teenager who wants to fight the world—or just his parents, or himself—may choose to ignore his medicine and his diet. So, as a doctor, I make examinations, listen to and talk with teenagers and their parents, recommend a preventive health program, and try to diagnose disease accurately and recommend treatment when indicated.

Now that I have sketched for you in brief the background from which I speak, what should I say specifically to you who are primarily interested in the good which you can do for people through knowledge of foods and what they do for us and to us? Maybe first, a typical and true story of what frequently happens in my office will best illustrate some points that are important.

The first time I saw Mrs. B. or her son, Jack, she told the nurse that she had to see me first to tell me something important before I could be alone with Jack. As soon as my office door closed behind her, she shook her finger forcefully at me and insisted: "You've got to do something for him—pills or something—I have to help him lose weight!" When I was alone with Jack, I found him to be in very good health, slightly on the heavy side as many boys and girls are early in their adolescent years. When he indicated to me that he wanted me to do something for him so that he would be slimmer, I asked him (as I usually do in answer to this approach) what he was doing for himself. Jack's answer was interesting. "Oh, I've tried—sometimes—" he said, "but she always gives me a big piece of cake before I go to bed!" I tried to point out to both Jack and his mother what each was doing in relation to his weight "problem." We also discussed Jack's responsibility for his own food habits.

It seems to me that with nutrition, as with the other very important aspects of our lives, we "experts" must try to understand what questions are really asked of us to discern some of the hidden questions behind the stated ones, and to keep straight in our own minds who-is-who in the advice

and counsel situation. By this, I mean that it is as wrong for a physician or a nutritionist to take over for the patient or the parent as it is for the inexperienced lay parent to insist that he is an expert on health or nutrition because of one school course or some newspaper, magazine, or fanatic-fringe book reading.

Child-Parent-Food Relationships

Another verbatim report from a small part of a three-way conversation between sixteen-year-old Carol and her mother and myself indicates how frequently arguments about food are really hidden ways of arguing about other things, such as love, jealousy, fear, or hostility. Indicated as well is the narrowness and the formality of many of the teachings and writings about good nutrition.

Carol told me that she was trying very hard to gain weight "because I want to." She said, "I'm so skinny." But, in the next breath, she added, "My mother drives me nuts worrying about me. If it weren't for her, I'd probably be satisfied with myself the way I am."

When I asked her if she would like to invite her mother in for a three-way conversation, she at first thought not, but then said: "I *will* bring her in," and added with some satisfaction, "We'll have it out." In a minute she brought her mother back from the waiting room, and we all sat down. Her mother, obviously a little tense, started: "She gained a pound. I guess I shouldn't crab."

Carol quickly and quietly countered: "When the garlic sausage is gone, I'll lose that pound." (How does one go about putting that in a textbook?) She then turned to her mother and reproved her. "You don't eat as much as I do."

The mother quickly answered: "I eat more."

Carol happily replied: "You admit you're a pig!"

How many feelings can be expressed with a few words!

Another patient, Lucy, taught me a great deal about the interweaving of physical and emotional causes of diseases and types of response to difficulties. When she was first my patient, she was thirteen and quite worried about her weight. She had the chubbiness of early adolescence, the growing outward that sometimes comes before the growing upward. It is true that some teenagers who have this obesity of early adolescence seem to become so convinced that they are "fatties" that they never slim down. Lucy did develop a lovely figure in the next years, as most young women do. In early adolescence, though, she and her brother were very obese. Maybe their need for nibbling had something to do with their father's alcoholism. In any event, when he conquered his alcoholism, there was improvement in the entire family's outlook on life, and Lucy and her brother had less trouble with bad food habits.

Whenever Lucy became angry with her father, or with her hard-working, long-suffering (and loud-suffering) mother, she was likely to get a belly-ache. One time she had a very persistent belly-ache, which, this time, was accompanied by fever and vomiting—and surgery had to be done for appendicitis. Belly-aches can be from "gripes"—from love, happy or unhappy, from poor food habits, *or* from ulcer or appendicitis.

Finger-aches, which Lucy later had, can be from differing causes, also. Sometimes fingers hurt because of arthritis, sometimes because of hypochondriasis. Lucy and I both thought at first that her finger-aches were due to her wanting to avoid the classes of a teacher she didn't like. When the pain persisted, a complete work-up showed a very high sedimentation rate and the positive laboratory tests for lupus erythematosus cells which told us that Lucy had lupus erythematosus, an unusual disease, and one which can lead to severe complications. Lucy and her mother asked for the truth, and I gave it to them. Now that she knows the truth, she is not pessimistic about her illness. She has a good job and a good-looking, responsible fiance. Last year she sent me a Christmas card. On it, she had written: "You're lucky you kept me alive. Otherwise you wouldn't have received this card!"

Lucy, and the thousands of other adolescents I see in my office, have convinced me that our teenagers and young adults will do a good job for themselves and for the rest of us—in their years of maturity. We have made many mistakes, so will they. We have also done many right things—as did our parents before us—so I believe that we can look to the future with some optimism.

Teaching Teenagers Nutrition

I would like to close with ten suggestions for parents and other adults who wish to help educate teenagers about proper nutrition.

(1) Give the teenager credit for knowing something.

(2) Give him a chance to talk and ask questions.

(3) Allow him to accept or reject an idea while *talking* about it. Then, he won't have to reject it by action. (This does not mean giving up your stand based on your knowledge just because the teenager says he doesn't agree with you. You can stick to your guns and still allow him the opportunity to dissent verbally.)

(4) Don't fall into the trap of "taking sides" in an argument between the generations that probably is not really based on food.

(5) Don't *force*-feed food or ideas to teenagers. Force will make them resist—or become more childish and less able to be responsible adults.

(6) Don't be afraid to express *your* honest feelings about what is important. Adolescents don't

really want to be "strictly on their own" yet. They are not ready for absolute responsibility as long as they are still living in the family home.

(7) The best teaching is by example, not by talking. How many of us have fruits or vegetables at our coffee breaks, instead of doughnuts or a candy bar?

(8) Good nutrition is a long-term thing, not a meal-by-meal or even a day-by-day emergency.

(9) There is no perfect food (even milk has detractors who worry about too much calcium, or too much cholesterol, or milk's constipating effects, or its strontium-90 content). Yet, there is some food value even in the snacks we worry about (milkshakes and hamburgers do contain proteins as well as carbohydrates and fats).

(10) Aim for acceptance of one's self instead of going along with an adolescent's dream-wish. Time and energy are often wasted wishing for, or investing in, magic promises to achieve ideal health, ideal nutrition, an ideal mate, or an ideal world. That time and energy could be much better spent utilizing to the fullest what *is* available in this problem-filled world.

How Your Meat Purveyor Can Help You

Today's buyer must know yields, percentages, food costs, cost per portion, cost per unit, budget allocations, balanced menus, and so on. He (or she) is not expected to be an expert on the complete background of every item, however, and must therefore look to his various suppliers for as much information as possible. In buying meats, he must look to his meat purveyors. Where the buyer is handling one type of feeding operation, the purveyor is familiar with many and has a wealth of knowledge which could be valuable to the buyer. Let me enumerate some of the ways in which your meat purveyor can help you make decisions.

First: Give him full particulars regarding your needs. If he is informed of your method of purchasing and the ultimate goal of your menu, he will mention only those items most profitable to you, plus the many ways in which you can utilize the resources of his plant, such as complete fabrication of all meats purchased, or the use of portion-control meats. Your needs are his guide for selling.

Second: Ask your salesman about current market conditions. The most common source by which you obtain reports on market fluctuations on various items is your sales representative. Knowledge of the market is of great significance where large quantities of beef are to be purchased, stored, and then used at a future date. The meat purveyor can advise you as to when and how much to purchase to cover a given time to insure profitable savings during a rising market.

Third: Ask for suggestions. The most experienced buyer will welcome suggestions, realizing that possibly from three or four ideas, a good one would fit perfectly into his operation.

Fourth: Determine whether you and the representative are discussing the same item. This is important, not only when requesting information on a specific cut, but also when the price factor in purchasing any meat item is being discussed. We are all familiar with the various government grades of beef. Let us see how, by giving full specifications on *each* meat item being purchased, you will obtain more consistent price quotations from all purveyors.

A buyer might ask: "What is your price on short loins?" Unless the dealer already knows the buying habits of this person, he could not honestly or intelligently give a quotation. Suppose, though, he were asked: "What is your price on 100 pieces of prime-peeled short loins, New York cut, with not over a two weeks' age, measuring not more than 10 in. each end—all with large eyes and well marbled?" In that case, any meat purveyor would price the item correctly.

Fifth: Ask yourself, "When is a buy not a buy?" This is the case when meat is purchased that is not adaptable to the menu due to the price or cut. Many buyers believe that price is the determining factor in purchasing. This is a fallacy, for the prime factor is to obtain a product which gives the highest yield with a minimum food cost. The buyer must, of necessity, know the percentage yield of his food to order intelligently. In the case of meat, not only is the cut a determining factor, but also the quality. A steer piece of meat will shrink less, cook faster, and cut better than an inferior grade. The buyer must then first decide on the quality, then the cut, and last the price.—*Harold E. Nathanson, Old Colony Packing Co., Boston, speaking before The Culinary Institute of America, New Haven, Connecticut, on March 24, 1959.*

Can We Eradicate the Classical Deficiency Diseases?[1]

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WHAT ARE the classical deficiency diseases? Where are they found? What is their incidence? The classical deficiency diseases as I know them are: beriberi, pellagra, avitaminosis A, scurvy, and rickets. We may well include goiter, also. To these I might add, kwashiorkor, as that disease has come to be recognized as prevalent everywhere in the tropics and south temperate zone. Fatalities from it may be as great or greater than from any of the more specific deficiency diseases. Indeed, kwashiorkor is well on its way to attaining a classical status.

I refer you to the maps published by the American Geographical Society (1) which will give some idea of the recognized distribution and incidence of these diseases. The data represented by these maps are by no means quantitative or detailed. In fact, the basis for the maps is little more than reports by physicians that each of the indicated diseases has been encountered frequently in this area or within the past two decades.

Program of National Nutritional Surveys

Countries in which any systematic nutritional survey has been made are indeed few, although we have been adding to this number very considerably in the past few years through the activities of the United States Interdepartmental Committee on Nutrition for National Defense. However, the surveys by this Committee have largely been limited to the military forces of the various nations involved, i.e. Formosa, Korea, the Philippines, Pakistan, Iran, Libya, Turkey, Ethiopia, and Spain. Similar studies are now under way in Peru and Vietnam, and Laos and Cambodia may soon be undertaken. Such armed forces surveys do not, of course, give a complete picture of the country, for women and children are frequently not included. Nevertheless, no army lives entirely apart from its civilian population. It is governed largely by the food habits and practices of civilian life as well as by the indigenous food supply and food industry. The economics and technology of food production in the country have in each case been considered in the survey.

The survey in Formosa was the first to be undertaken, and its results occupy the complete May 1956 issue of *Metabolism* (2). The other surveys mentioned are also being prepared for publication and will appear, according to present plan, in the *Journal of Nutrition* within the next year or so. (Two have already been published [3, 4]). The information will serve to round out considerably the results of other, and in general less systematic, surveys. Unfortunately, it seems likely that international policies will, for the present, limit these activities to countries which are accepting military aid from the West, particularly the United States.

FORMOSA

Fortunately in Formosa (Taiwan), it was possible to organize a survey of civilians under private auspices. Thus, with extensive participation on the part of Chinese scientists and officials, a clinical and biochemical survey of 1019 sixth grade school children supplemented by examination of 91 college students and 107 adults in a Taipei market (2) was carried out by Dolliffe and Tung. As their findings were consistent with those of the extensive studies of the soldiers, we shall place primary emphasis on the former in this summary, since I presume that the majority of readers will be interested primarily in public welfare rather than military fitness. Sixth grade school children were chosen because of their accessibility in the schools, which are regularly attended by substantially all children up through the sixth grade although only a fraction attend the

[1]The Mary Swartz Rose Lecture for 1959 presented by the Greater New York Dietetic Association on April 20, 1959.

Threshing rice on Formosa (Taiwan)

higher grades. Clinical or biochemical evidence, usually both, of deficiency was found in the following percentages of the sixth grade pupils: riboflavin deficiency, 70 per cent; low excretion of urinary thiamine, 55 per cent; iron deficiency, 13 per cent; vitamin A deficiency, 10 per cent; niacin deficiency, 10 per cent; hypoproteinemia, 3.2 per cent; and beriberi, 0 per cent. In 107 adults examined, however, signs of beriberi were found in 6 per cent of the sample.

KOREA

Among 1514 private soldiers (no civilians) randomly chosen and examined physically, 303 were also examined biochemically for serum proteins, hemoglobin, ascorbic acid, vitamin A, and carotene (4). Urine specimens for a 6-hr. period were also taken from 198 of the above and examined for excretion of thiamine, riboflavin, and N'methyl nicotinamide. Analyses of rations as consumed were also made.

Of the troops examined, 13.8 per cent had angular lesions of the mouth and 16.3 per cent were excreting low levels of riboflavin. There were indications of suboptimal levels of intake of vitamin A and carotene, but at the time of the survey these needs were being met by green vegetables from gardens tended by the soldiers near their posts of duty. Thiamine, niacin, and ascorbic acid intakes were clearly ample. The troops use exclusively undermilled rice with apparently excellent control of weevils and degree of undermilling. The soldiers are not typical of the general population in this respect, since the civilian supply of rice is predominantly white.

There was evidence of great improvement in nutritional status since 1953 when a previous unpublished survey of these troops was made. The improvement was reflected by the fact that the percentage of men who were under 90 per cent of standard weight had dropped from 46 per cent to 16.7. Indications of protein and ascorbic acid deficiency noted in 1953 had disappeared in 1956. Changes from war to peace conditions had effected much of this improvement, but there was also clear evidence that good military management of food supply had been in force.

PHILIPPINES

This survey, carried out early in 1957, included detailed physical examination of 1333 enlisted men and non-commissioned officers, and abbreviated physical examinations of 2901 more, a total of 4234. These examinations were supplemented by analyses of blood from 202 men and specimens of urine from 188. Foods as consumed were also analyzed.

The dietary and biochemical evidence clearly indicated low intakes of thiamine, riboflavin, and ascorbic acid. Clinical evidence supported the low thiamine intakes, with 2.4 per cent of the men subjected to detailed physical examination showing loss of ankle jerks as compared with 0.1 per cent in Korea and 0.05 in Formosa. Clinical confirmation of low riboflavin and ascorbic acid was very general in nature. (Consistency of clinical findings as between different examiners working apart in different countries and at different times is very difficult to achieve.)

PAKISTAN

In Pakistan, goiter was found in 31 per cent of the men examined at Muzaffarabad in the extreme north, but in only 6 per cent for the army as a whole (4). Symptoms due to ariboflavinosis, perhaps aggravated by wind, sun, and dust were seen in 18.1 per cent. Recession of gums was reported for 65.3 per cent, and other symptoms of scurvy, such as bleeding (5.9 per cent) and marginal swelling, were prevalent (26.9 per cent). In Comilla, East Pakistan, 13.8 per cent exhibited low urinary thiamine, and at Dacca, 3 per cent of the soldiers showed loss of ankle jerks. Elsewhere this symptom was absent. Perhaps the most notable finding was that, of the 2019 men examined, 21 per cent were under 80 per cent of standard weight.

A human draft-animal on the streets of Calcutta

IRAN

A survey of similar character and dimensions in Iran revealed both clinical and chemical evidence of borderline intakes of riboflavin, vitamin A or carotene, and ascorbic acid. These shortages were more marked in new inductees than in men with a year or more of service, which suggests that the same shortages are present among civilians.

LIBYA

In Libya, 3828 persons were examined, including 1185 army troops, 1014 defense and police, and 1629 civilians. The army troops were better fed than the defense and police, and these better than civilians. The nutriture of women and children was worst of all. Thirty per cent of the infants showed clinical evidence of rickets.

In the army, stores of vitamin A, thiamine, and ascorbic acid in the body were quite low. Goiter was prevalent among the women of the Garian area. Enlarged livers of unknown cause were found frequently among civilians. Trachoma occurred widely. The younger children, ages one to five years, appeared to be in poorer health than older ones. Barley is the principal food crop and the main food supply of the people. In some locations, 70 per cent of the men were less than 90 per cent of standard weight and at all other locations, 46 per cent were less than 90 per cent of standard. Obviously food supply for the larger part of the population is precarious.

TURKEY

A total of 8519 Turkish men were physically examined. Of these, detailed examinations were made in 1705; the remainder, 6814, were examined in an abbreviated manner. Caloric intake appeared quite adequate. Using the United States medico-actuarial

In India, the sacred cows are privileged and are never considered as potential food sources

tables as a reference standard, the mean per cent of standard weight was approximately 105. The margin of safety with respect to ascorbic acid, vitamin A, and riboflavin was quite narrow; otherwise, intakes of nutrients appeared satisfactory. Physical examinations revealed 23.7 per cent of the men with enlarged thyroids; 8.9 per cent with nasolabial seborrhea; 9.2 per cent with thickened conjunctiva; 10.3 per cent with conjunctival injection; 26.6 per cent with cheilosis; 32.1 per cent with red or swollen gums; 10.3 per cent with bleeding gums; and 21.1 per cent with follicular keratosis.

OTHER SURVEYS

The results of the surveys in Ethiopia and Spain are not yet available for summary.

We may mention here, however, two recent nutritional surveys which have been carried out under private auspices, i.e., in Cuba and Haiti.

Cuba has been surveyed by Jolliffe and associates (5) by the examination of 2171 sixth grade school children from all parts of the island in proportion to density of population. Underweight was found in 43.7 per cent of the public school children and 10.4 per cent of those in private schools. Riboflavin deficiency, as evidenced by active angular stomatitis or nasolabial seborrhea, occurred in one-fifth to one-third of the children. Urinary excretion reflected a low level of thiamine intake, but no clinical evidence of beriberi or pellagra was encountered.

Sebrell and co-workers have conducted a survey in Haiti, the results of which have only recently been published (6). One curious finding may be mentioned, namely rather high riboflavin excretion accompanied by considerable clinical evidence of ariboflavinosis. Conjecturally, this is imputed to temporary high seasonal consumption of mangoes or avocados at the time of the survey.

Riboflavin Deficiency

Such fragmentary data are our only means of judging the prevalence of classical deficiency diseases. You will have noted that a deficiency of riboflavin is the commonest and most wide spread among the populations mentioned. This is characteristic of rice-eating countries, such as Formosa, Korea, and the Philippines. It is also true of all the others, including even Turkey, which has been much westernized. Even in the United States, we know that the Recommended Dietary Allowance for riboflavin is scarcely met by a considerable segment of our population in non-dairy areas.

This fact gives rise to several questions. Are the usual signs of ariboflavinosis, chiefly nasolabial seborrhea and angular stomatis, really indicative of a serious deficiency? Are there more serious consequences at present unknown? You will note that I have not included ariboflavinosis among the classical deficiency diseases. In a practical sense, we cannot do so as long as we must admit that we know of no human deaths from this cause. As long as this is true, it will be impossible to arouse public opinion to take action in less progressive and enlightened countries. However, animal experiments clearly indicate sudden collapse and death from ariboflavinosis; thus we cannot dismiss the matter without a second thought. If ariboflavinosis as it exists today is causing serious impairment of human life, we must learn to recognize and measure it. We certainly shall not be able to generate much enthusiasm about eradicating little sores in the corners of the mouth.

The second question is: where is the necessary riboflavin to come from, if it is seriously needed by human beings? Look over the tables of the riboflavin content of all known foods and try to find a plausible answer. Meats, especially organ meats and milk, are by far the most likely possibilities, but we can be certain that adequate supplies of meats and milk are not going to be available in densely populated countries such as Japan, China, India, and Indonesia in the foreseeable future. Shall we seek to bring about the widespread cultivation of crops of unusually high riboflavin content, such as avocados, or are we going to turn to synthetic sources? If the latter, through what foods or otherwise are we going to achieve adequate and well distributed consumption? The Chinese Nationalist Army in Formosa is introducing for the first time large scale and heavy fortification of rice with riboflavin. Is this a pattern which must be widely adopted in Asia? Perhaps a few years of further observation in Formosa may furnish a significant answer.

Measures to Eradicate Deficiencies

It is beyond dispute that there is a great deal of classical deficiency disease throughout the less developed countries. What measures are available which might serve to eradicate them? All such measures fall under three heads: (a) better farming, (b) avoidance of losses by refining, and (c) distribution of synthetics.

BETTER FARMING

Under the head of better farming, we have in mind primarily better choice of crops as well as their more successful cultivation. Such measures indeed have vast possibilities in less densely populated areas such as the interior of Vietnam, Burma, Malaya, Sumatra, the Philippines, much of Latin America, and probably considerable parts of Africa. In considering density of population, one must keep in mind primarily density with respect to the available area of arable, fertile, and well watered land. Disregarding this factor, one might say that the Sahara and Arabia are sparsely populated, but I doubt that this is true if one considers the very small portions of these deserts which are capable of substantial food production. Yet there are many desert valleys which are extremely fertile, if water can be obtained to irrigate them and there is no definite limit to possible means of procuring water.

One cannot doubt that there exist large areas in South America and Africa where diversified farming and the raising of beef and dairy cattle, sheep, or poultry might be quite successful if the proper amounts of capital and technologic skill were applied. Even India presents the spectacle of hundreds of millions of cattle subsisting side by side with hundreds of millions of people. Economically, these cattle serve little purpose, except as work animals; their milk production is extremely low, and beef is rarely used as human food. By comparison with India, the cattle population of the rest of Asia and her offshore islands is low indeed. For most of Asia, and especially the more densely populated portions of China, India, Japan, and Java, I can scarcely imagine that dairy farming such as that of Wisconsin or of Denmark will ever become possible.

In thinking of better farming in the broad sense as a means of improving the dietaries of the underfed peoples of the earth, one must realistically ask the question: when can such improvement be brought about? This presents a problem which we can scarcely consider in very concrete terms. We have seen in the United States enormous changes in the modes of agriculture within two or three decades. As one example out of many that might be cited, soy beans have become within that period our principal vegetable oil crop rising from a negligible production prior to the depression.

However, it is noteworthy that rapid changes of this sort are limited to the more progressive Western countries where a large reservoir of technical knowledge has accumulated and where investment capital is abundant. If any backward country has

undergone a favorable and revolutionary change in its agricultural economy, I have missed it. Many endeavors have been made chiefly by the great foundations to reconstruct the agriculture of underdeveloped countries but without outstanding success. The greatest success of which I know has been the Rockefeller Foundation work in Mexico. There, the development of well adapted varieties of corn during twenty years has measurably succeeded in building up the country's total crop.

Few who have had experience with such endeavors will dispute the view that such changes, where most needed, will occur in significant degree only with the lapse of several decades. The task of deciding what reforms should be attempted will call for great patience, wisdom, and experience. Training in our Western agricultural colleges is not well adapted to the needs of tropical lands. Often the newly graduated agronomist finds himself in strange surroundings amid unfamiliar crops, a difficult-to-predict climate, strange and to him often awkward tools, new problems of transport and marketing, and so on. It is almost necessary that he live there several years to form a good idea of what he should try to do. From the nutritional standpoint, sufficient knowledge of the shortcomings of existing dietaries is usually unavailable. There is also great reluctance to try new crops or new foods, and this reluctance is more or less in proportion to the prevailing degree of illiteracy.

PROBLEMS OF RICE REFINING

For the eradication of beriberi, use of rice which retains a substantial part of the bran is a measure which has been advocated in Southeast Asia for nearly fifty years. This teaching has undoubtedly had some effect, since the great and fatal epidemics of beriberi, which formerly prevailed in jails, prisons, insane asylums, army posts, and labor camps, no longer occur. Credit for this improvement must be given in part to educational effort which has made all literate Asians aware that the bran coats of grains contain a preventive substance. In part, reduction of deaths from beriberi has been due to ready availability and cheapness of synthetic thiamine. The word vitamin has been absorbed into all Asian languages, and great faith is placed in such preparations—especially if injected.

One hundred or more years ago, most of the rice of Asia was milled by hand in wooden or stone mortars. Only a few substantial, power-driven mills then existed, and these were in large cities which served as centers of the rice trade. As the years have passed, however, hand milling has been gradually abandoned, and in the major rice producing areas, larger and more efficient mills have replaced the small ones. In the hills of Burma, Thailand, and Vietnam, hand milling is often practiced still, but it is inevitable that around cities, where there is opportunity for employment in factories, homemakers will give up the practice of spending 2 or 3 hr. in hand-pounding the day's rice for the family. When I first went to Manila in 1908, hand-pounding of rice could be seen on the premises of half the homes in the city. Returning in 1946, I had to go 20 or 30 mi. back into the hills to find a rice mortar to photograph. Even so, this mortar had not been used for years, except as a receptacle in which to feed a pony. Further industrialization of the Orient will slowly but surely and somewhat unevenly continue everywhere.

Japan has taken the leadership in applying systematically the undermilling of rice as a measure against beriberi. It was introduced there during the middle 1920's on a voluntary basis with some effect, but it did not become universal until the time of World War II when, under patriotic motivation, it was prescribed by law. Mortality from beriberi in Japan has fallen in proportion to the success achieved in its enforcement. One can see in Korea and to a lesser extent in Formosa an after effect of former Japanese authority in the enforcement of undermilling of rice for the armed forces.

Undermilling by large mills is practiced nowhere in Southeast Asia, except for parboiled rice in India. The principal argument against it is that consumers dislike rice retaining substantial amounts of bran. Rice millers rather foster this dislike, for they realize that weevils would destroy large amounts of grain if they attempted to store it in an undermilled condition. The Japanese and Koreans have met the weevil menace very satisfactorily by systematic fumigation of mills and warehouses. One suspects that this could be done also in the warmer climates of South Asia, but it would obviously require much technologic skill and diligence which could only be achieved by governmental enforcement.

Indonesia presents a picture of preserved primitivity in the rice trade. All Indonesian mills are small, and each serves only a local area where the product goes promptly to the consumer before weevil infestation becomes serious. Thus most of the rice produced in Indonesia is sold in an undermilled state, and severe beriberi is now rarely seen. The greater part of the population of India is protected from beriberi by the extensive use of parboiled rice, which is not attacked by weevils even though undermilled. The extension of parboiling to other areas of Asia has often been advocated. The obstacle to this is that in most of Southeast Asia there is no long dry season free from rain which makes sun-drying in India feasible. Fuel drying requires great care to avoid overheating and adds a large expense.

DISTRIBUTION OF SYNTHETICS

We can now turn to the third possible means of

eradicating classical deficiency diseases, namely the use of synthetics. Our trial of cereal enrichment in the United States has been a great success, largely because of the unified support of the milling and baking industries through their excellent and influential trade organizations. We have invoked mandatory enrichment under state laws to some degree, but in many states these laws are poorly enforced. In consequence, we see cereal enrichment practiced quite as effectively in states without such laws as in many of those with them.

As one turns his eyes abroad where most of the classical deficiency diseases still exist, one looks in vain for effective industrial support. Potent industry-wide organizations simply do not exist in underdeveloped countries. Hence, we must rely largely on mandatory laws which must be well enforced if they are to be effective. Chile and Denmark have taken the lead abroad in bread and flour enrichment, and their laws in this area have been enforced quite successfully. Sentiment in favor of such laws in a number of Latin American countries has been growing slowly, but it is too early as yet to evaluate the results.

Of course, the outstanding cereal enrichment needed abroad is the improvement of the white rice of Asia. The Philippines have been the great testing ground so far, for they present the great recognized focus of beriberi in the world today. This island republic enacted a rice enrichment law in 1952, but the extent of its enforcement to date is almost negligible. All the political influence of the rice trade is arrayed against it. A desire to avoid or evade taxation by concealing the amount of rice produced by each mill seems to be the primary motivation. The rice millers cannot quite achieve the repeal of the rice enrichment law, for there is excellent public support for it. However, they have so far rendered enforcement impossible.

The great argument for enrichment of refined cereals with synthetics is that it can be done very promptly without the need for universal popular education toward better choices of food. But where an important political opposition exists, as in the Philippines, all this advantage of speedy action may be lost. It may well take many decades to build up the necessary popular support for enrichment to secure its effective adoption in Burma, Vietnam, Malaya, and Indonesia as well as perhaps, Japan, Korea, and Formosa. If the Philippines succeed in eradicating beriberi by that means, the way may be open for a much more rapid advance elsewhere in Asia.

Other Deficiency Diseases

You may have the impression that I have forgotten about the deficiency diseases other than beriberi. Let us discuss each of the others. Rickets is a disease for which there is no excuse where sunshine is abundant. Teaching mothers to expose small infants to sunshine seems clearly the practical approach, though again it will take years to achieve it. Scurvy also is a disease which occurs only in the tropics where people habitually neglect to use the fruits they have. Again, education seems the best answer, though some other measure may be necessary in certain areas. Pellagra is limited to rather small areas in Eastern Europe and Egypt. Artificial enrichment of corn products is so inexpensive and easy that it surely will be done the moment the governments concerned take the problem seriously. Fortunately, the world's greatest corn eaters, the Indians of Central and South America, already protect themselves against pellagra by the use of beans and coffee.

Hypovitaminosis A and riboflavin deficiency are extremely prevalent in most underdeveloped countries. Our expedient of putting vitamin A in table fats will not work in Asia, as they do not use such fats. They have no bread on which to spread them. The addition of vitamin A must be extended to cooking fats and protected from excessive oxidation by anti-oxidants. Then, the choice will lie between such fortification and growing and using more green and yellow vegetables. As we have already remarked, if ariboflavinosis proves to be a serious human disease, we shall almost be compelled to use synthetic riboflavin to correct it.

In conclusion, one can say that there is no quick way to eradicate the classical deficiency diseases. All possible avenues must continue to be tried with all enthusiasm and diligence. If we do not still have a substantial residue of classical deficiency diseases in 1970, I shall be agreeably surprised. Perhaps, however, we can greatly reduce their incidence by then.

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The Recommended Allowances in Assessing Diets[1]

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FROM THE very beginning, nutrition workers have felt the need for a standard of some kind for use in planning and evaluating diets and food supplies. Earliest standards were concerned with the kinds and amounts of foods that would prevent undernutrition or even starvation and with the cost of such food allowances.

By the latter part of the nineteenth century, a number of dietary standards had been proposed by European physiologists and chemists for persons of different age, sex, and occupation. These were generally stated in terms of calories, although sometimes protein was given and less often, fat and carbohydrate. For the most part, these standards were based on observations of quantities of food actually consumed by presumably healthy individuals in different occupations. The persons studied were usually laboring men doing moderate-to-heavy work. Caloric needs of women and children were estimated as a proportion of the man's need until later when actual studies were made.

In the United States, Atwater was a pioneer in developing and using dietary standards, as well as in food composition and energy metabolism studies. His Bulletin 21, "Methods and Results of Investigations on the Chemistry and Economy of Food," published in 1895, contains a most interesting chapter on dietary standards (1). His proposed standards for fuel value were 3000 calories for a man with light muscular work, and 2400 calories for a moderately active woman. These figures put forth over sixty years ago have a familiar ring today. The amounts of protein suggested by Atwater were levels that seemed reasonable in view of usual consumption. They were somewhat larger than today's allowances.

As the science of nutrition has unfolded over the years, dietary standards have been based on an increasingly broad foundation of research. They have been extended also to include more nutrients. For example, in 1917, Sherman and Gillett (2) reported a detailed analysis of 102 family dietaries which were calculated in terms of calories, protein, calcium, phosphorus, and iron. "In considering the adequacy of the various food factors," the authors state, "it is obviously necessary to have some basis for judgment as to what is adequate for proper nutrition." Accordingly, so-called "standard" allowances for the five nutrients were proposed and used in analyzing these diets. In setting the allowances for protein and the three minerals, a 50 per cent margin of safety was added to average minimal amounts of the nutrient required for balance. These dietary standards were used not only as criteria for evaluating food consumption but as a basis for recommendations for improving food habits.

Since the objective in food planning may vary all the way from preventing deficiency disease to promoting optimal nutrition, it is not surprising to find that different dietary standards have been used at different times and places. The Recommended Dietary Allowances were first presented at the National Nutrition Conference in 1941. They were described as "amounts of the various nutrients desirable to include in practical diets . . . a guide for planning adequate nutrition for the population of the U. S. . . . planned to provide a reasonable margin of safety." Most nutrition workers were enthusiastic about having a dietary standard so "well born." Here at last was a yardstick developed by a group of experts, which should be acceptable to almost everyone and which should aid in achieving

[1]Presented before the Food and Nutrition Section, American Public Health Association on October 28, 1958 in St. Louis.

greater consistency in food planning and dietary analysis.

Today, seventeen years later, I believe we can agree that this has occurred. Take, for example, the regional studies of nutritional status in relation to dietary intake, conducted during the last ten or twelve years by state agricultural experiment stations in cooperation with the U. S. Department of Agriculture. Although collection of data was carried out by individual states, plans for analysis were developed jointly so that results of various segments might be comparable enough to be put together in an over-all summary.

Diets of Individuals

In these studies, the Recommended Dietary Allowances were used as a point of reference in analyzing and interpreting diets. Their use has not only provided a basis for qualitative evaluation of an individual's diet, but it enabled the analysts to compare diets of persons with different nutritional needs. Hence, it is possible to combine results into a summary statement, such as: "Protein intake equal to the NRC's recommendation was reported by only 20 per cent of the pregnant women, 40 per cent of the homemakers, 47 per cent of the women in industry, and 83 per cent of the industrial men" (3). Or this: "Evaluation of the nutrient intake of these subjects showed that the average intakes exceeded 80 per cent of the 1953 Recommended Dietary Allowances except for iron for the girls. On the other hand, 30 per cent of the subjects reported diets which supplied less than one-half of the recommended allowance of one or more nutrients (most often ascorbic acid, calcium, or vitamin A)" (4). Here the point of comparison was not the full allowance, but 80 and 50 per cent. Evaluation of diets of boys and girls with different nutrient needs were summarized in one sentence.

These illustrations of the uses of the Recommended Dietary Allowances in analysis and interpretation of diets of individuals indicate a process that is simple, straight forward, and easy to understand. It involves only calculation of the nutrients and comparison with recommendations for a comparable individual listed in the table. Sometimes, however, results of dietary studies are reported only in terms of the percentage of a standard such as the recommended allowances, a yardstick subject to revision. In that case, the study is "dated," so to speak. However, if the original basic data on food consumption and nutrients are reported, the results can be appraised in the light of revised allowances or any other criterion of adequacy.

Family Studies

In evaluating diets of household groups, the process is not quite as simple. Here the usual method is to obtain data on the total quantity of each food used in the household during some period of time, usually a week. Appropriate food composition figures are then used to estimate the nutrients provided by this household food supply. The next step is to reduce these aggregates to some person-day basis. The divisor used may be in terms of person-meals with twenty-one meals equivalent to one person. Thus, if twenty-one breakfasts, fourteen lunches, and eighteen dinners were served, the household would be equivalent to $\frac{53}{21}$ or 2.5 persons. Total nutrients are then divided by 2.5 to obtain averages per person.

Because families differ widely in composition and activity and therefore in nutritional needs, investigators have devised a more satisfactory basis for expressing nutritional needs of unlike families or nonhomogeneous groups. This involves selecting one individual, usually the adult male, expressing his needs for a nutrient as 1.0, and the needs of other individuals as fractions of the need of the reference adult. Such scales of relatives can be developed from the Recommended Dietary Allowances. For example, the protein allowance for the man is 70 gm. and for the woman is 58 gm., which is 83 per cent or 0.83 of the man's allowance.

There can be a separate scale for each nutrient or the same scale can be used for those nutrients for which needs are related to each other or to a common denominator. For example, thiamine allowances are related to calories; protein, vitamin A value, and riboflavin are related to body weight.

Household size, then, can be expressed in terms of these relatives called "nutrition units" (energy units, calcium units, and so on). The total of each nutrient in the family diet is divided by the number of nutrition units to which the household is equivalent. The result will be the average calorie (or protein, calcium, and so on) content per nutrition unit. This explanation is given in some detail, not because we think many of you will be analyzing diets in nutrition units but because you may be using results of studies reported in these terms. This is a rather difficult concept, one which has led to misunderstanding.

In interpreting averages per nutrition unit, they should be compared with the absolute values represented by unity or 1.0 in the scale of relatives. To illustrate: a family's food supply is calculated to provide 15 mg. iron per nutrition unit; this is well above 10 mg., the recommended allowance for the reference man. This is interpreted to mean that the family's food supply, if equitably distributed, would provide adequately for the iron needs—50 per cent above the allowances—of every member of the household. Thus the use of nutrition units provides

a basis for appraising at a glance the nutritional quality of a family diet. Also, averages per nutrition unit for different families or different population groups are directly comparable, provided the same dietary allowances and scale of relatives were used in their derivation.

The use of different allowances, however, can make some difference in interpretation, particularly if the allowance for the reference man taken as unity is changed (5). A good illustration is the effect of changing the calcium allowance for adults from 0.8 gm. in the 1945 Recommended Dietary Allowances (and again in 1958), to 1.0 gm. in the 1948 edition. For a family of a man, woman, boy fourteen, and girl nine, the calcium allowances in 1958 are: 0.8 gm., 0.8 gm., 1.4 gm., and 1.0 gm., respectively, and household size in nutrition units for this family would be 1.0, 1.0, 1.75, and 1.25, or a total of 5.0 units. If, however, the value of unity is 1.0 gm., as it was in 1948, the relatives for these individuals would be: 1.0, 1.0, 1.4, and 1.0 or a household size of 4.4 nutrition units. The calcium content of this family's diet would be calculated to be larger per nutrition unit when the value of unity was 1.0 gm. (and the divisor 4.4) than when the value was 0.8 gm. (and the divisor 5.0). It is confusing, on first thought, that the family diet appears to be better when compared with the higher allowance for adults than when compared with the lower.

This example shows again why it is so important to report *basic* data on food consumption and family composition from which nutritive values can be recomputed and reappraised in the light of revised dietary standards.

Interpreting Results

The words used to describe and interpret dietary evaluations are extremely important. One may properly say, for instance, that the nutrients provided by a diet meet, exceed, or fall short of the recommended allowances or some proportion of them. This is a factual statement based on calculations, in which the allowance is used as a point of reference. On the other hand, any description of diets as "adequate" or "inadequate" needs careful qualification, for here the ground is not so firm.

Unfortunately, there have been examples showing lack of understanding of the scientific basis and philosophy of the allowances. Sometimes they have been treated as though they were precise, almost magic figures, and it is implied that any diet furnishing less than these levels must surely indicate malnutrition. Statements of this kind are eagerly seized on by promoters of dietary supplements and other nostrums.

Per Capita Allowances

A related use of dietary allowances is in developing weighted per capita allowances, representative of the population as a whole. In this procedure, the allowance for each age and sex group as shown in the table of Recommended Dietary Allowances is multiplied by the percentage of the total population in each group, the resulting figures added and then divided by 100. Population statistics from the Census are used for weighting by age and sex distribution, but the research worker must decide on the caloric allowances assigned to adults in the light of average body size and assumptions as to activity and environmental temperature.

Per capita allowances suitably weighted are useful as a guide in planning food supplies for a country or any large population group. They are sometimes used for comparison with estimates of the nutrients available from the per capita food supply.

Caution is needed, however, in drawing conclusions from such comparisons. For one thing, the two kinds of figures are not on the same basis. The recommended allowances refer to nutrients ingested, but per capita food supplies are usually measured at the retail stage of distribution. Also, the fact that national food supplies are not distributed in accordance with nutritional need should always be brought to mind. Nutrients available in this country's food supply may exceed per capita allowances for each nutrient, while dietary studies made in the same year may show a sizeable proportion of households or individuals falling short of recommendations.

Per capita allowances for our population need to be revised from time to time to take account of changes in age composition and estimated activity, and of course, changes in the allowances themselves.

Problem of Caloric Allowances

One problem facing those who formulate dietary allowances as well as those who use them is how to handle caloric allowances for adults. Because caloric needs are determined by many factors—body size, age, climate, and activity—it is impossible to suggest a single figure for men and another for women that would apply to most individuals. In the first three editions of the Recommended Dietary Allowances, you may recall, three degrees of activity were specified for a 70-kg. man and a 56-kg. woman. Nutrition workers, planning or analyzing diets in the abstract, used their judgment in assuming the activity level or, lacking any basis, used the moderately active man and woman as the standards for adults. This was simple, if not precise.

In the 1953 and 1958 editions, however, caloric allowances are suggested for three age categories, with age twenty-five taken as the reference point. The "reference man" and "reference woman" are described as to height, weight, activity, and environmental temperature in which they live. The bulletins

state that adjustments must be made for individuals or population averages when age, body size, climate, or activity differ from that described for the reference man and woman. Procedures for making these adjustments are explained.

These refinements provide a way of estimating more precise caloric allowances than were possible formerly. In my opinion, however, considerable study of the discussion in the 1953 and 1958 editions is needed before understanding what the caloric allowances represent. Nutrition workers needing the most appropriate figures probably will try to make the adjustments indicated. For example, in planning analysis of the U. S. Department of Agriculture's 1955 food consumption study, certain modifications of the 1953 dietary allowances were deemed necessary for application to our population groups. The rationale and method of deriving modified figures were described by LeBovit and Stiebeling (6).

Many workers will be baffled by the problems of making adjustments for which they would be responsible; they prefer to use something ready made. It is likely that they will select the age-line nearest to the age of their adult subjects if they know it. If not, or if workers are planning diets for men in general, or women, they may select the twenty-five-year-old reference adult as the standard—or perhaps the forty-five-year-old as being a "middle" or average man. Caloric allowances suggested in the 1958 table are 3200 and 3000 respectively, for these individuals, who are described as being engaged in moderate physical activity. Neither figure may be suitable for use for an "average man." LeBovit and Stiebeling proposed figures of 3000 calories for men of twenty-one to thirty-four years of age and 2700 calories for thirty-five to fifty-four years, as being more appropriate for average men of those ages in the United States. For women, corresponding figures are 2000 and 1900 calories for the two age groups.

Each analyst must decide what figures are most suitable for his purpose. It may be that his basic data on food consumption are such rough estimates that efforts to adapt the dietary allowances precisely to the type of subject for comparison with findings would be unwarranted. If adjustments are made in caloric allowances to fit the group being studied, changes should be made also in other nutrients that are related to calories or body weight—for example, the thiamine requirement is related to energy needs, riboflavin and vitamin A to body weight.

Niacin Equivalent

In the 1958 Recommended Dietary Allowances, niacin levels are expressed as "niacin equivalents." This change reflects the fact, now well established, that the amino acid, tryptophan, functions as a precursor of niacin in man and that it is unrealistic to consider niacin alone. The use of niacin equivalents in dietary calculations may present problems, until such time as appropriate values can be incorporated into tables of food composition. Meanwhile the procedure involves calculating the tryptophan content of a diet and adding this, suitably equated, to the niacin content. Although tryptophan values for some three hundred foods are given in a recent publication, *Amino Acid Content of Foods* (7), information is not yet available for many commonly used foods, including processed and prepared foods. Also, the values in this bulletin are given on two bases, grams per gram of nitrogen and grams per 100 gm. of food, edible portion. For some studies, data need to be converted to common portions or to pounds as purchased, for ready use in dietary calculations. Obviously, this procedure will offer some difficulties at first.

Evaluation of diets with respect to niacin equivalent poses another problem. If tryptophan is used preferentially for protein synthesis, how do we know how much of the tryptophan in the diet is available for the niacin function?

Suggestions for Users

From this brief review, a few suggestions come to mind for all of us engaged in dietary studies or food planning. By all means let us use the Recommended Dietary Allowances; they are a valuable tool for the job. But let us use them intelligently. This means studying the text that accompanies the table of allowances so that we understand something of how they were developed and what they stand for. Remember especially:

(a) That the recommended allowances are designed for the maintenance of good nutrition in healthy persons; they are not "requirements."

(b) That the nutrient levels suggested are the amounts to be ingested, whereas the nutrients calculated to be present in diets or food supplies may include quantities lost or discarded in distribution or preparation for eating and the two sets of data therefore may not be directly comparable.

(c) That they are subject to revision from time to time, as nutritional knowledge advances.

(d) That the kinds and quantities of food consumed are the basic data in any dietary study; comparison with the dietary allowance is part of the evaluation, but should not replace the basic information.

(e) And finally, that the real test of the adequacy of a diet is the long-term nutritional health of the individuals consuming the food.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Anton Julius Carlson—January 29, 1875–September 2, 1956

"What is the evidence?" should be the key question asked by all nutritionists. Spoken with a heavy Swedish accent, this phrase was frequently used by Anton J. Carlson as he challenged unwarranted conclusions or statements by students, friends, or other scientists.

Anton Julius Carlson was born to Carland Hedwig Anderson Carlson on January 29, 1875 on a farm near Gäteberg in Sweden. A boyhood in the countryside and work as a farm helper herding sheep and goats helped to develop the rugged, vigorous, hard-working individualist he remained throughout his life. At sixteen he followed his brother to this country, settled in Chicago, worked as a carpenter, saved his money, and in 1892 entered Augustana College, Rock Island, Illinois, intending to become a minister. Science soon won his interest and he went on to Stanford University to earn a doctoral degree in biology awarded in 1903. The following year he had an opportunity to go to the marine biology laboratories at Woods Hole, Massachusetts, and won recognition for his research on the origin of the heartbeat in the horseshoe crab. This was followed by a call to the University of Chicago—where he spent the rest of his professional life in teaching and research.

To the hundreds of medical students who learned their physiology from him, Carlson was a superb teacher. Forbidding in appearance and to be feared by the careless or ill-prepared student, he, nevertheless, was recognized as a warm-hearted, loyal friend ready to encourage and help at any time. His keen wit, his love of the rough and tumble argument, coupled with a trained mind, imagination, and tremendous capacity for work directed to vital research studies, won him renown as a physiologist.

Studies on digestion, hunger, and thirst, many of these carried out on himself, led to the writing of one of the classics of the fields of nutrition and physiology, *The Control of Hunger in Health and Disease* (1916). In all, he published three books and more than two hundred scientific and philosophical papers, distinguished for their quality and indicative of the range of his interests. Carlson was also a leader in the fight against the anti-vivisectionists who were hampering medical research.

Although forced to retire at sixty-five, until his death at eighty-one, Dr. Carlson continued to work and write in his tiny office on the University of Chicago campus.

Many honors were conferred on him in recognition of the scope of his work in physiological research and as a writer, editor, speaker, teacher, and humanist. He served as president of a number of professional societies: the American Association for the Advancement of Science, National Society for Medical Research, American Biological Society, Federation of American Societies for Experimental Biology, American Association of University Professors, and the American Gerontological Society. The American Medical Association awarded him its Distinguished Service Gold Medal in 1953; he received many honorary degrees, and in 1953 was voted Humanist of the Year.

Dr. Carlson, known to his friends as Ajax, was married to Esther Sjogren. They had two sons and a daughter. This was a close and happy family. Fishing, duck hunting, swimming, old Swedish songs around the fireside, and bridge were some of his relaxations, although he was happiest when engaged in research or fighting for the cause of his fellow man.

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—Contributed by E. Neige Todhunter, Ph.D. Dean, School of Home Economics, University of Alabama, Tuscaloosa.

III. Whole Egg and Beef Muscle

Biologic Availability of Essential Amino Acids to Human Subjects[1]

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THE PRESENCE of the recommended amounts of the essential amino acids in a protein food is not *per se* adequate for the assessment of nutritional quality of a food. The rate and extent of enzymatic liberation of the amino acids (1, 2), structural antagonism between certain amino acids (3), rates of absorption for individual amino acids, and solubility, in the case of certain proteins, must be investigated before the true index of biologic availability can be determined.

Several studies of the availability of amino acids in beef have been reported, using rats as the experimental vehicle. Kuiken and Lyman (4) calculated availabilities of the ten essential amino acids in roast beef by determining amino acids in food and feces and correcting for metabolic amino acids in feces on the basis of data obtained from the low-protein ration. They concluded that all of the essential amino acids in roast beef were completely available to the rat. Deshpande *et al.* (5) prepared a standard growth curve by feeding rats a basal ration to which graded levels of isoleucine were added. The amounts of isoleucine available from the several foods studied were read from the standard curve. They reported an isoleucine availability of 80 per cent for beef and 90 per cent for egg albumin. Guthneck, Bennett, and Schweigert (6), using weight gains in protein depleted rats, reported that the utilization of lysine was 87 per cent from beef proteins and 91 per cent from dried eggs. Gupta *et al.* (7), also using growth data, reported values of 76 per cent for lysine in beef and 93 per cent for lysine in egg albumin. Schweigert and Guthneck (8) obtained a utilization of 79 per cent for methionine in beef proteins. Gupta and Elvehjem (9) reported for tryptophan in beef an availability of 99.5 per cent, using growth data, and 96.1 per cent, using the unavailable tryptophan in feces as the criterion.

In the investigation reported here, three women and two men were used to study the availability of the eight essential amino acids in whole egg and beef muscle. Essential amino acids were determined in diets and in feces.

Experimental Procedure

Each subject was given a physical examination, including determination of basal metabolic rate. The subjects were between twenty-two and twenty-seven years of age and ranged in body weight between 44 and 74 kg. Four were graduate students; the fifth was a research assistant. Regular class and work schedules were carried on during the feeding periods.

There were one preliminary and two experimental periods of ten days each. During the preliminary period, the amount of nitrogen from whole egg protein necessary to attain a slightly positive nitrogen balance and the required caloric intake for maintenance of body weight were determined. With one exception, the subjects received during each experimental period 0.8 gm. protein per kilogram per day. Subject C.H., whose body weight was 44 kg., was given 0.9 gm. protein per kilogram per day. All subjects received 48 calories per kilogram per day during both experimental periods. Hence, the diets for each subject were isonitrogenous and isocaloric during both periods.

The same basal diet reported previously (10) was used. Its protein content was between 4.5 and 5.0 gm. per day. During the two experimental periods, the remainder of the protein intake was provided by either whole egg or beef muscle. A portion of the daily intake of egg or beef was eaten at each of the three meals.

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TABLE 1 **Average daily nitrogen balances**

SUBJECTS	DIETARY NITROGEN	URINARY NITROGEN	FECAL NITROGEN	NITROGEN BALANCE	AVAILABLE NITROGEN*
		Egg Diet			
	gm./day	*gm./day*	*gm./day*	*gm./day*	*%*
E. B.	7.92	4.75	1.38	1.93	82.6
N. J.	7.94	4.89	0.99	2.06	87.5
F. W.	7.17	4.45	0.91	1.81	87.3
Z. P.	6.65	3.92	0.66	2.06	90.1
C. H.	5.35	3.17	0.70	1.48	86.9
Average . . .	7.01	4.24	0.93	1.87	86.9
		Beef Diet			
E. B.	8.59	5.89	1.13	1.57	86.8
N. J.	7.65	4.86	0.69	2.10	91.0
F. W.	6.92	5.31	0.48	1.13	93.1
Z. P.	6.43	5.57	0.78	0.69	87.9
C. H.	5.70	4.26	0.61	0.85	89.3
Average . . .	7.06	5.18	0.74	1.23	89.6

*$\frac{\text{dietary nitrogen—fecal nitrogen}}{\text{dietary nitrogen}} \times 100$.

The eggs were produced by a closed flock of chickens at Tuskegee Institute. Eggs, scrambled in butterfat, were served for breakfast, egg salad for lunch, and either scrambled or boiled eggs for supper.

A sufficient amount of beef round for the ten-day period was purchased in a local market. It was stripped of as much connective tissue, cartilage, and fat as possible, and ground. The ground meat was analyzed for total nitrogen content and the amount necessary to provide the predetermined daily nitrogen intake for each subject was divided into three portions (a serving for each meal of the day), wrapped in foil, and frozen. Beef patties, broiled in butterfat, were served at each meal during the beef period.

Daily intakes of beef were between 157 and 250 gm., and of egg, 260-420 gm. The meals were prepared and served in the Diet Kitchen of the School of Home Economics. Samples of the total diets for each subject during each period were homogenized, and total nitrogen and amino acid determinations were made on the homogenates.

Total nitrogen was determined by the Kjeldahl procedure, and the eight essential amino acids were determined according to procedures of Barton-Wright (11).

Hard candy, consisting of sucrose, flavoring, and water, was first used as a calorie booster and adjustor. The subjects of heaviest body weight required large amounts of candy; they were engaged in candy eating a disproportionately large part of the day and reported this to be a depressant to the appetite. Therefore, isocaloric amounts of sucrose were substituted for candy and the sucrose was consumed at lunch and dinner in iced tea.

Urinary and fecal collections were made during the six days immediately following the four-day adjustment period. Twenty-four-hr. urine samples were analyzed for total nitrogen. Feces were homogenized in a Waring Blendor, and both nitrogen and amino acid determinations were made on the homogenates.

Results and Discussion

NITROGEN DATA

The average nitrogen intakes during the two periods were similar (Table 1), while the average urinary nitrogen was higher during the beef period and the average fecal nitrogen higher during the egg period. The average nitrogen balance was more positive during the egg period than during the beef period, indicating a higher retention of nitrogen from egg than from beef. In the egg diet, 86.9 per cent of the total nitrogen was available, and in the beef diet, 89.6 per cent.

AMINO ACID DATA

Except for the methionine content of both diets, the intakes of essential amino acids were similar to or greater than the safe intakes, as defined by Rose (12). Since cystine shows a sparing effect on the methionine requirement, it is unfortunate that both cystine and methionine determinations were not made. If cystine values are estimated on the basis of published data for beef cuts and whole chicken eggs (13), the total sulphur-containing amino acid content of the egg diet was adequate, while the sulphur-containing amino acid content of the beef diet was slightly limiting.

In similar experiments (10, 17), an attempt was made to correct for fecal amino acids of both endog-

TABLE 2 **Percentage availability of amino acids in total diets**

SUBJECTS	AVAILABILITY							
	Isoleucine	Leucine	Lysine	Methionine	Phenylalanine	Threonine	Tryptophan	Valine
				Egg Diet				
	%	%	%	%	%	%	%	%
E. B.	92.7	92.6	89.3	91.4	91.4	85.3	—	90.0
C. H.	91.3	91.1	84.7	86.5	87.8	86.7	—	86.0
F. W.	88.7	90.3	91.4	92.3	89.8	88.2	68.0	92.9
N. J.	87.6	92.2	91.6	92.7	91.0	91.8	83.5	92.4
Z. P.	91.3	88.3	90.8	94.1	91.6	93.1	76.4	87.9
Average . . .	90.3	90.9	89.6	91.4	90.3	89.0	76.0	89.8
				Beef Diet				
E. B.	91.8	92.3	94.2	87.7	90.0	87.0	—	86.6
C. H.	92.7	90.4	92.3	86.9	89.2	86.6	—	88.3
F. W.	95.1	95.8	94.4	95.5	94.0	91.2	85.4	94.3
N. J.	92.0	93.3	92.6	91.3	89.4	89.8	86.5	92.8
Z. P.	90.8	92.1	90.3	90.8	88.6	91.9	66.7	91.2
Average . . .	92.5	92.8	92.8	90.4	90.2	89.3	79.5	90.6

enous and bacterial origins. The subjects were fed the low-protein basal diet in the absence of a protein test food, and amino acids in feces were determined. In several cases, it was observed that fecal excretions of amino acids were less during a period when protein was fed than during the low-protein period. This observation seems to indicate that the amounts of metabolic amino acids excreted vary with the type of diet. Therefore, the inclusion of a low-protein period in such a study as this does not provide suitable estimates for intestinally synthesized and endogenous amino acids.

Availabilities of the amino acids in the total diets (Table 2) were calculated according to the following equation:

$$\% \text{ availability} = \frac{\text{intake from total diet} - \text{amount excreted in feces}}{\text{intake from total diet}} \times 100$$

Availabilities for the two diets were similar, showing values between 76 and 91 per cent in the egg diet and 80 and 93 per cent in the beef diet. The superiority of egg among protein foods with regard to a high coefficient of digestibility and suitable distribution of essential amino acids has been reported by several investigators (14-16).

While the data reported here are not contradictory to previous findings, an equality of beef and egg proteins with regard to availability of amino acids is shown, rather than a superiority of one over the other. The amino acid of lowest availability in both diets was tryptophan. There was difficulty with the tryptophan assay procedure, and tryptophan values were not obtained for two subjects, E.B. and C.H. Hence, the averages for availability of tryptophan are less reliable than those for the other amino acids due both to the difficulty in procedure and to the fact that fewer subjects were included in the average. A lower availability for tryptophan than for the other essential amino acids in an egg diet has been reported from this laboratory previously (10). Since two of the three values calculated for the availability of tryptophan in beef are near 85 per cent, it is likely that the true average for the entire group would be higher than the reported average.

Summary

Two men and three women participated in an investigation to determine the availability of the eight essential amino acids in diets containing a large amount of either whole egg or beef muscle. Availabilities for the egg diet were between 76 and 91 per cent, and for the beef diet, 80 and 93 per cent. Neither diet showed a superiority over the other.

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Average Weight in Relation to Age and Height

In the newly released *1959 Build and Blood Pressure Study*, Vol. 1, new data on average weight in relation to age and height have been compiled by the Society of Actuaries. The data represent the experience of twenty-six insurance companies between the years 1935 and 1953. Almost 5 million policies, or 65 per cent of this country's life insurance, were issued by these companies during this period and form the basis for the new report. The new tables, which include comparative figures for the standard which is currently in use and which are based on a nineteen-year study ending in 1929, follow.

HEIGHT	WEIGHT															
	15 & 16 yr.		17 to 19 yr.		20 to 24 yr.		25 to 29 yr.		30 to 39 yr.		40 to 49 yr.		50 to 59 yr.		60 to 69 yr.	
	New study	Old standard	New study	Old standard	New study	Old standard	New study	Old standard	New study	Old standard	New study	Old standard	New study	Old standard	New study	Old standard
								Men								
	lb.	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*	*lb.*
5′ 0″	98	103½	113	110	122	118	128	124	131	128	134	133	136	135	133	136
2″	107	111	119	116	128	124	134	128	137	132	140	137	142	139	139	140
4″	117	119	127	124	136	131	141	134	145	138	148	143	149	145	146	146
6″	127	127	135	132	142	139	148	142	153	146	156	151	157	153	154	154
8″	137	135½	143	140	149	146	155	150	161	155	165	160	166	163	163	164
10″	146	143½	151	148	157	154	163	158	170	165	174	170	175	173	173	174
6′ 0″	154	153½	160	158	166	163	172	169	179	176	183	182	185	184	183	185
2″	164	163½	168	168	174	173	182	181	188	189	192	195	194	198	193	199
4″	—	—	176	178	181	183	190	192	199	201	203	209	205	205	204	213
								Women								
4′ 10″	97	97	99	105	102	111	107	114	115	119	122	216	125	129	127	130
5′ 0″	103	104	105	109	108	115	113	118	120	123	127	130	130	133	131	134
2″	111	110	113	115	115	120	119	122	126	127	133	135	136	138	137	139
4″	117	117½	120	121	121	126	125	129	132	134	140	141	144	144	145	145
6″	125	125½	127	128	129	133	133	136	139	142	147	149	152	153	153	154
8″	132	133½	134	136	136	141	140	144	146	150	155	157	160	163	161	164
10″	—	—	142	144	144	149	148	152	154	157	164	164	169	171	—	—
6′ 0″	—	—	152	152	154	156	158	159	164	163	174	171	180	177	—	—

Thiamine and Riboflavin in Roast Beef[1]

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THE SCARCITY of data on the nutritive value of cooked foods is generally recognized (1,2). This is as true of meat as of other foods; therefore, the research reported here seemed justified. It furnishes data on the effect of roasting on the thiamine, riboflavin, fat, and moisture of a number of retail cuts of beef. The effect of roasting temperature and of roasting with the bone left in and removed were considered also, since thiamine has been shown to be sensitive to length of heating (3), and since beef roasted in institution-sized quantities was found to retain significantly greater amounts of thiamine and riboflavin when cooked at low than at high oven temperatures (4).

Experimental Procedure

PREPARATION OF SAMPLES

The cuts of beef used were top round, rib, rump, tenderloin, and arm section of the chuck. All were Choice grade.

The top round roasts were either the first or second slice from wholesale rounds. Each was 2½ in. thick. The rib roasts were from Chicago-style wholesale cuts and contained ribs 6-7, 8-9, or 10-11-12. The rumps were boned and rolled. Tenderloins were left whole. The chuck arm sections were ground, the ground meat mixed with 6.6 per cent of its weight of soft bread crumbs, 7.1 per cent of beaten egg, and 36.0 per cent of milk, and the mixture then formed into loaves approximately 9 by 5 by 2½ in.

Prior to cooking, approximately 200 gm. were cut from each side of the round and rib roasts and from each end of the rump and tenderloin roasts. The two portions so obtained were ground, thoroughly mixed, and used as the raw sample. Approximately the same amount, i.e., 400 gm., of the beef loaf mixture and of the ground chuck-arm were set aside as raw samples for the loaves and meat which went into the loaves, respectively.

Roasting was done at 177°C., except for one member of each of the pairs of ribs, which were used to test the effect of roasting temperature. These were cooked at 149°C. The interior temperature at which the roasts were removed from the oven was 71°C. in each instance, except the beef loaves, which were heated to 75°C. A rack and an open roasting pan were used in all cases.

After roasting had been completed, the edible and inedible portions of each roast were separated and weighed. The edible portion was then ground, thoroughly mixed, and used as the cooked sample.

At least four replicate cookings were made on each of the cuts of meat.

ANALYTICAL METHODS

Thiamine and riboflavin were determined by the methods of Conner and Straub (5) and Peterson, Brady, and Shaw (6), respectively. Fat was determined by extraction of dried ground meat with anhydrous ether. Moisture was determined as the loss in weight of 10-gm. samples of ground meat during heating for 18 hr. at 60°C. in a vacuum of 28 in. mercury.

The percentages of thiamine and riboflavin retained in the cooked meat were calculated on three bases, namely the vitamin content before and after cooking of (a) the entire roast, (b) a unit weight of dry fat-free solids, and (c) a unit weight of dry solids.

The first two methods of calculation gave mean retention values which were not significantly different from each other. The standard deviations calculated on the roast basis were smaller, however, than those calculated on the dry, fat-free solid basis. The third basis of calculation, that is, dry solids, gave retentions significantly higher than the other two, indicating that the change in fat content during the roasting was too great to be dis-

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TABLE 1 **Mean thiamine and riboflavin in raw and roasted beef and retention after roasting**

CUT OF BEEF	MEAN THIAMINE			MEAN RIBOFLAVIN		
	Raw roast	Cooked roast	Retention†	Raw roast	Cooked roast	Retention†
	mg./100 gm.	*mg./100 gm. cooked wt.*	%‡	*mg./100 gm.*	*mg./100 gm. cooked wt.*	%‡
Top round	0.102±0.01*	0.084±0.02	54	0.182±0.01	0.227±0.05	81
Ribs, 6–12	0.058±0.01	0.044±0.01	54	0.126±0.02	0.171±0.04	88
Rump	0.098±0.01	0.084±0.01	61	0.193±0.08	0.236±0.07	86
Tenderloin	0.091±0.02	0.082±0.02	63	0.197±0.03	0.230±0.02	84
Beef loaf prepared from ground chuck arm#	0.162±0.02	0.184±0.01	70	0.213±0.02	0.284±0.05	80

*Standard deviation.

†Any two means not side-scored by the same line may be considered significantly different at the 5% level, except for the riboflavin value for top round. This mean is not significantly different from those for tenderloin and beef loaf. Shortest significant ranges at the 5% level of significance are: for thiamine, 11 for 5 means, 10 for 2 means; for riboflavin, 6 for 5 means, 5 for 2 means.

‡Calculated on entire roast basis.

#Mean thiamine and riboflavin content of beef from which loaves were prepared: 0.186 and 0.195 mg. per 100 gm. raw weight, respectively.

regarded when comparisons were being made of raw and cooked samples. These results are similar to those reported for Choice lamb cuts (7).

The percentages of thiamine and riboflavin reported in this paper were calculated on the first basis described, that is, on the vitamin content of the entire roast before and after cooking. These results were subjected to an analysis of variance (8) and the means separated into significantly different groups by the Duncan multiple range test (9).

Results and Discussion

Standing ribs of beef roasted at 149°C. were not significantly different in percentage retentions of thiamine, fat, and moisture from corresponding paired cuts roasted at 177°C. Likewise, standing ribs were not significantly different in the retention of any of these factors, and also in riboflavin, than paired rolled ribs when both standing and rolled ribs were roasted to an interior temperature of 71°C. in an oven at 177°C. Thus, the slightly longer cooking periods required at the lower oven temperature and for the boned roasts were not sufficient to cause further destruction of even heat-labile thiamine. Since the percentage retentions were not significantly different, they were averaged and will be discussed below.

The mean thiamine and riboflavin contents of the various cuts of beef are given in Table 1. The values for the raw meat agree closely with those in the literature (10-12). So, too, do those for the cooked meat from cuts (rib and round), for which reasonably comparable figures are recorded (10, 13).

The average percentages of thiamine and riboflavin retained in the edible portions of the various cuts after roasting are also included in Table 1. Thiamine retention was significantly higher in the beef loaves (70 per cent of the amount present in the raw ingredients) than in the top round and rib roasts (54 per cent). It was intermediate in the rump and tenderloin roasts, which retained neither significantly lower percentages than the beef loaves on the one hand or significantly higher ones than the top round and rib cuts on the other.

Riboflavin retention showed a different pattern with respect to the various cuts. For this vitamin, the rib and rump roasts retained the highest percentage, with an average of 87 per cent of the quantity present in the raw roasts; the loaf and top round roasts retained the least, an average of 80 per cent. The tenderloin roasts retained an intermediate amount, which was not significantly different from either the high or low retentions.

The quantities of thiamine and riboflavin dissolved in the drippings were negligible for the rib roasts. They were about the same for the other cuts, for which they amounted to approximately 5 per cent of the quantity of thiamine and 8 per cent of the riboflavin in the raw samples.

The fat and moisture contents of the raw and cooked meat are given in Table 2. These values agree in general with ones given in the literature for comparable cuts (10).

Calculations based on the figures presented in Table 1 show that a 4-oz. serving of the various beef roasts would furnish the following percentages of the recommended thiamine and riboflavin allowances (14) for a twenty-five-year-old, 154-lb. man: top round, almost 4 per cent of the thiamine and 9 per cent of the riboflavin; ribs, 2 per cent of the thiamine and almost 7 per cent of the riboflavin; rump and tenderloin, 4 and 5 per cent, respectively, of the thiamine and 10 per cent of the riboflavin; and beef loaf, 8 per cent of the thiamine and 11 per cent of the riboflavin.

TABLE 2 **Mean fat and moisture content of raw and roasted beef**

CUT OF BEEF	FAT		MOISTURE	
	Raw	Cooked	Raw	Cooked
	gm./100 gm.	*gm./100 gm. cooked wt.*	*gm./100 gm.*	*gm./100 gm. cooked wt.*
Top round	12±3.8*	18±2.0	67±4.5	54±2.4
Ribs, 6–12	37±7.3	38±4.0	45±5.4	40±4.8
Rump	26±5.9	28±3.6	55±4.4	47±2.4
Tenderloin	24±3.7	32±3.5	58±3.1	44±1.3
Beef loaf prepared from ground chuck arm	11±4.4	13±4.1	70±3.4	59±4.4

*Standard deviation.

Summary

The effect of roasting on the thiamine, riboflavin, fat, and moisture contents of various retail cuts of beef has been determined, and the percentages of thiamine and riboflavin retained in the cooked meat have been calculated. Standing rib pairs were roasted at 149° and 177°C., and rolled and standing rib pairs were roasted to the same interior temperature at 177°C. to learn if the longer heating period required by the first treatment would affect thiamine retention. The other cuts roasted were: top round, rump, tenderloin, and beef loaf, the meat for which came from the chuck arm. All roasts were heated to an interior temperature of 71°C.; the loaves which were heated to 75°C.

Longer heating did not affect the thiamine retention in the cooked meat.

Roasted beef loaf retained an average of 70 per cent of the amount of thiamine in the raw ingredients. This retention was significantly higher than that of cooked top round and rib roasts, which averaged 54 per cent. It was not significantly different, however, from the retention in rump and tenderloin roasts, both of which showed intermediate values.

Roasted beef loaf and top round retained the lowest proportion, about 80 per cent, of the riboflavin originally present in the raw samples, while rib and rump roasts retained the highest proportion, an average of 87 per cent. Tenderloin roasts were intermediate in riboflavin retention and not significantly different in this respect from any of the other roasts.

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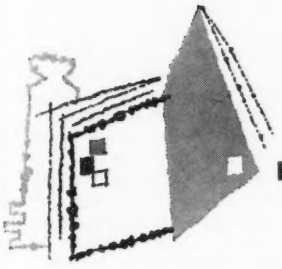
The *Wall Street Journal* reports that Safeway Stores, in answering federal charges of false weight-control claims for its Slender-Way bread, said that the bread has fewer calories than other brands because it's sliced thinner!



BOOK REVIEWS

The Chemistry and Technology of Cereals as Food and Feed. Edited by Samuel A. Matz, Ph.D. Westport Connecticut: The Avi Publishing Company, Inc., 1959. Cloth. Pp. 732. Price $15.

The editor of this book is Chief, Cereal and General Products Branch, Food Division, Quartermaster Food and Container Institute for the Armed Forces. In the preface, he explains that this book is designed to furnish a comprehensive survey of the chemistry and technology of the cereal industries which will be useful not only to workers in cereals and allied fields but also to others, among them food technologists, agronomists, and marketing and sales personnel. Twenty-five authors, "specialists" in their fields, have contributed chapters.

The volume is divided into three sections. In the eight chapters comprising the first section, there are detailed descriptions of each of the chief cereal grains, an account of their origin, of the soil and climatic conditions essential for their growth, and a statement on the economic importance of each.

The second section deals with processing methods. Of the twelve chapters in this division, those of most interest to workers in the field of foods and nutrition are those on commercial baking procedures, macaroni production, the manufacture of prepared mixes, of breakfast cereals, and of special dietary foods. The dietitian who may expect to find new information on special dietary foods may be disappointed to discover that the thirteen pages of that chapter deal only with the manufacture of cereals for infants with brief mention of their possible use in modified diets for adults. Other chapters in Section II deal with milling, production of oils from cereal grains, malting, brewing, and feed manufacture.

In the third section are discussed the functional and storage characteristics of cereal products. The chapters on the characteristics of cereal starches, flavor staling resulting from lipid deterioration, and the adequacy of processed cereals in human nutrition are the three which will be of particular interest to persons in the field of foods and nutrition. The other two chapters deal with animal feeds and with effects and detection of insect and rodent infestation of cereals.

There are 164 illustrations in the book which add interest, as, for example "How do you put the hole in macaroni?" At the close of each chapter, references are listed, varying in number from three for the chapter on special dietary foods to 117 for the chapter on the adequacy of processed cereals in human nutrition.

The book is of general interest and might well be used as a reference text for cereal study.—*Ruth Jordan, Assistant Professor of Foods and Nutrition, Purdue University, Lafayette, Indiana.*

Diseases of Metabolism. Edited by Garfield G. Duncan, M.D. Philadelphia: W. B. Saunders Company, 1959. Cloth. pp. 1104. Price $18.50.

In this fourth edition, the chapter on "Protein Metabolism" is new; and it is the *first* chapter. In it, J. M. Salter discusses: amino acid requirements and the need for their simultaneous availability; protein quality and supplementation; amino acid imbalances; factors affecting protein requirements; the dynamic state of body proteins; hormonal influences on protein metabolism; and the metabolism of amino acids, some individually, and interrelationships involved.

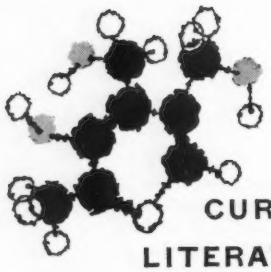
S. Gurin has prepared a new chapter on "Lipid Metabolism," and concludes: "It is abundantly clear that much more investigation will be required before the complex processes involved in lipid physiology can be adequately described and explained. Not only is the regulation of blood lipids dependent upon a number of unknown forces which are involved in the release and uptake of blood lipids by the liver and other organs, but it is also important to recognize the very complex metabolic processes occurring within the organs and tissues themselves. This interplay represents a most complex pattern which will have to be laboriously untangled . . ."

A new chapter on "Obesity" by J. M. Strang, comprises 104 pages and includes 181 references. Obesity is defined as "a form of malnutrition characterized by excessive fat deposits. It may or may not be associated with other forms of malnutrition, especially protein deficiency, or it may be found in association with other disorders of the body or mind." The subject is reviewed from early times to the present, including recent research on energy expenditure. Treatment begins with a complete history, including a diet history, as well as a physical examination. The principles of therapy are listed: (a) calorie deficit; (b) adequate protein; (c) the necessary carbohydrate; (d) accessory food substances such as minerals and vitamins; and (e) time. The basic principles of the reducing diet "must be adapted for practical use. There is a difference between a 'safe' diet and a 'successful' diet, which must combine the features of biologic adequacy and safety with those of acceptability for a sufficient period of time to secure significant weight loss." For hospital use, weighed dietary plans are given; for home use, measured diets are suggested. Also, a liberal "four group" diet is given for patients for whom rate of weight loss is not vital. Concerning prognosis, the author observes: "The principal factor involved in permanent success is the reeducation of the patient's food habits. The long period of self-discipline required of a patient for the removal of significant amounts of weight aids in his self-control, but he must also have learned to like normal types of foods in normal proportions."

G. G. Duncan has revised his chapter on "Diabetes Mellitus." Again, eleven standard diet plans are presented, and the Exchange system is used. In the chapter on "Juvenile Diabetes," revised by P. White, regulation of insulin and diet are considered fundamental; exercise is the third part of treatment; and the psychologic problems must be understood. Five sample diets are given as well as advice concerning emergency diets.

In "Diseases of the Kidney," M. Miller and J. M. Hayman, Jr., briefly discuss the relative merits of high- or low-protein diets in treating glomerulonephritis, and then state: "A middle course is probably best . . ." They also discuss salt and fluid restriction.

In this edition, the double-column pages with bolder print and the revised headings afford greater ease in reading. This medical book is an excellent reference for the dietitian and for the nutritionist.—*M. Bertha Brandt, Research Assistant, The Chicago Lying-in Hospital, The University of Chicago Clinics.*



CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl Frederick, University of Chicago Clinics; and the Journal staff.

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 7, September-October, 1959

*The physiology and pathology of unusually high intakes of nutrients. A. R. P. Walker.—p. 499.

*Diet and atherosclerosis. Variations on a theme. O. J. Pollak.—p. 502.

Some comments on the American diet and household consumption data. R. S. Goodhart.—p. 508.

A forty-day-550 calorie diet in the treatment of obese outpatients. E. Sohar.—p. 514.

Food habits and food consumption of Jews from Cochin in Israel. K. Guggenheim and F. Dreyfuss.—p. 519.

*A dietary study of the Pima Indian. F. G. Hesse.—p. 532.

*Appraisal of nutrition in Haiti. W. H. Sebrell, Jr., S. C. Smith, E. L. Severinghaus, H. Delva, B. L. Reid, H. S. Olcott, J. Bernadotte, W. Fougere, G. P. Barron, G. Nicolas, K. W. King, G. L. Brinkman, and C. E. French.—p. 538.

*The effect of an intravenous fat infusion on blood coagulation. T. D. Stevenson and L. Reed.—p. 585.

*Serum cholesterol levels of North American women living at Guatemala City. J. Méndez, N. S. Scrimshaw, and M. Flores.—p. 590.

*Cholesterol levels of maternal and fetal blood at parturition in upper and lower income groups in Guatemala City. J. Méndez, B. S. Savits, M. Flores, and N. S. Scrimshaw.—p. 595.

Unusually High Intakes of Nutrients. Whereas much is known of the physiology and pathology of nutritional deficiencies, far less is known of the effects of habitually excessive nutritive intakes. The value of animal studies is limited by the uncertainty of the extent by which findings may be extrapolated to man. Studies of certain African populations, primarily because of the gross diversity of diet which varies from one territory to another, may be useful to current problems. This editorial cites examples in which excessive intakes apparently have had no deleterious effects. It is ironic that the huge research potential in most Western countries is devoted to animal experimentation when such wide fields of human nutrition, such as these in Africa, are open for study.

Diet and Atherosclerosis. Recently, Dr. Pollak travelled through Japan, Thailand, and Hong Kong. His observations on dietary practices and the prevalence of atherosclerosis are provocative. In Japan, the diet can be labeled "anti-atherogenic," while in Thailand it appears to be "atherogenic." The Japanese diet is low in calories, fat, and cholesterol and the fat used is rich in linoleic acid and other unsaturated fatty acids. Yet, atherosclerosis is common in Japan and rare in Thailand.

Diets of Pima Indians. The diet of about fifty Pima Indians of southern Arizona consisted mainly of beans, tortillas, chili peppers, and coffee, with meat and vegetables only once or twice a week. Only 16 per cent of the protein eaten is of animal origin, and 24 per cent of the caloric intake is fat, which is completely of the saturated type in the form of lard. The average serum cholesterol is within normal range. The finding of a relatively low-fat diet in relation to the low incidence of degenerative heart disease may be consistent with findings in other groups, except that the type of fat used is all of the saturated type.

Nutrition in Haiti. A nutritional survey such as this one made in Haiti makes three contributions. One relates to the incidence of dietary inadequacies in the given population *per se*. It was indicated that the Haitian peasant suffers from multiple nutritional deficiencies, the most important being insufficient calories and protein. There were some clinical suggestions of vitamin A deficiency, a number of small goiters, and considerable clinical evidence of riboflavin deficiency. Another contribution of the study relates to the recommended therapeutic measures. It is felt that the principal needs in the Haitian diet can be met within Haiti's own resources. A third contribution relates to a better understanding of how man adapts to nutritional stresses and the price he may have to pay in the struggle.

Intravenous Fat Infusion and Blood Coagulation. The results of blood coagulation studies following intravenous fat infusion in normal subjects and patients with coagulation disorders are reported. It is suggested that there is no conclusive evidence that lipemia *per se* results in hypercoagulability of the blood.

Serum Cholesterol of Foreign Women in Guatemala. Serum cholesterol of forty-two apparently healthy North American women who have lived in Guatemala City for at least two years was determined. The groups were twenty to twenty-nine, thirty to thirty-nine, forty to forty-nine, and fifty to fifty-nine years of age. Dietary histories were obtained at random from several subjects in each group, and the nutritive value was calculated. Fat consumption and dietary habits were unchanged from the habits in their country of origin. The cholesterol levels were slightly lower than U.S. standards for women under forty and similar for older groups. Hence, there were no environmental factors or way of life in Guatemala City which influenced serum cholesterol significantly.

Cholesterol Levels at Parturition. In this study, total serum cholesterol of two widely different socio-economic groups of newborn infants and their mothers at the time of delivery in Guatemala City were determined. Serum cholesterol levels of newborn girls were significantly higher than those in newborn boys. Although two different diets were studied, no tendency was observed for the infant's serum cholesterol to be related to the socio-economic group, to the mother's diet, or to the mother's serum cholesterol level at parturition. Serum cholesterol rose during pregnancy in the mothers of both groups, but the increase was more pronounced in the lower socio-economic group. A corresponding drop in cholesterol was observed thirty days post-partum in the mothers in each group, but proved statistically significant only for those in the lower income category.

AMERICAN JOURNAL OF NURSING

Vol. 59, November, 1959.

*Feeding the aged person. B. R. Buckley.—p. 1591.

Oldsters and Eating. Geriatric patients are really not different from younger ones, aside from being a bit more set in their ways and, perhaps, having physical inhibitors to graceful and proper eating habits. The nurse-author contributes suggestions for dietary planning, food preparation, and serving for the geriatric patient. She also explores some of the more important factors and techniques which are involved in the art of feeding the elderly.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 49, October, 1959

*Some factors associated with the development of coronary heart disease—six years' follow-up experience in the Framingham study. T. R. Dawber, W. B. Kannel, N. Revotskie, J. Stokes, III, A. Kagan, and T. Gordon.—p. 1349.

*Meeting the challenge of feeding the world. W. Anderson, C. French, N. S. Scrimshaw, and J. W. McNaughton.—p. 1364.

Coronary Heart Disease. As part of the longitudinal study on the development of coronary heart disease which is being conducted in Framingham, Massachusetts, attention is being given to a variety of specific factors. This report includes national origin, educational status, and smoking and drinking habits. During the six-year follow-up, there was an inverse association with educational status, the incidence of new coronary heart disease being less at higher educational levels. There was no association between national origin and the risk of coronary heart disease. Smoking was associated with an increased incidence of non-fatal myocardial infarction and of death from coronary heart disease in men, forty-five to sixty-two years of age. It was not associated

with an increased incidence of angina pectoris. Cholesterol levels were higher among cigarette smokers than nonsmokers and higher among those who had smoked and stopped than those who had never smoked. Neither relative weight nor blood pressure showed a similar association with smoking. The mechanisms by which smoking might be involved in the production of coronary heart disease remains obscure. Alcohol consumption *per se* was not associated with coronary heart disease, although heavy alcohol intake was associated with heavy smoking.

Challenge of Feeding the World. The need to provide enough food for all the people of the world is a basic public health problem. Statistics on world food production and population indicate that production is increasing at an annual average rate of about 2 per cent, while the rate of population growth is about 1½ per cent. However, the greatest increase in agricultural production has occurred in the technically advanced countries. More than half the world still subsists on inadequate diets. Countries with inadequate food supplies must increase not only food production, but also the purchasing power by expanding nonagricultural enterprises. Although large sums are being spent on technical programs by the countries individually or through international agencies such as FAO, WHO, and UNICEF, the food problems of the underdeveloped areas have not yet been solved.

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE (India)

Vol. 19, May, 1959

*Effect of long-term feeding of diets containing proteins from low-fat groundnut flour, Bengal gram *(Cicer arietinum)* and their blends on the growth and composition of blood and liver of albino rats. K. Joseph, M. Narayanarao, M. Swaminathan, A. N. Sankaran, and V. Subrahmanyan.—p. 131.

Effect of Vegetable-Protein Diets. The effect of long-term feeding of diets containing 20 per cent protein from low-fat groundnut (peanut) flour, Bengal gram, Indian multipurpose food, American multipurpose food, and skim milk powder on the growth and composition of the blood and liver of rats was studied. The results indicate that a blend of specially processed low-fat groundnut flour and Bengal gram flour fortified with calcium salts, vitamins A and D, and riboflavin can be used as a safe protein supplement to the diets of children in underdeveloped countries.

ARCHIVES OF PEDIATRICS

Vol. 76, October, 1959

*Studies on blood amino acid nitrogen in normal Egyptian infants and children and in cases of nutritional edema. S. Awwaad and E. A. Eisa.—p. 395.

*Use of intra-muscular iron for iron deficiency anemias in premature infants. M. O. Kepler.—p. 410.

Amino Acid Nitrogen. The amino acid nitrogen content of whole blood for normal Egyptian infants and children was estimated. Such figures for infants have not previously been worked out in Egypt or elsewhere. In the normal infants, no variation was noticed with regard to sex, age, or weight. In children with nutritional edema, there was a constant rise in the level of fasting blood amino acid nitrogen. This rise in the amino acid nitrogen content paralleled the degree of fatty change in the liver. Consequently, this high amino acid nitrogen content could be taken as a measure for the severity of liver damage in this disease.

Iron Deficiency Anemia in Prematurity. Six premature infants having the typical iron deficiency anemia of prematurity appeared to have marked gastro-intestinal distress from the oral use of ferrous sulphate drops. An iron-dextran solution for intra-muscular injection was tried. All infants responded well, with increased reticulocyte counts and absolute increases in hemoglobin and hematocrit values. As there were no signs of toxicity from the intra-muscular iron injections, this appears to be a safe and effective method of treating the classic iron deficiency anemia of prematurity.

BRITISH MEDICAL JOURNAL

No. 5150, September 19, 1959

*Iron therapy in primary iron-deficiency anemia. W. Brumfitt.—p. 473.

No. 5151, September 26, 1959

*Oral treatment of pernicious anemia with vitamin B_{12} and dessicated hog duodenal extract. E. K. Blackburn, G. H. Spray, H. T. Swan, G. R. Tudhope, and G. M. Wilson.—p. 535.

Treatment of Iron-Deficiency Anemia. Young men suffering from uncomplicated iron-deficiency anemia responded to oral iron. No difference between treatment with ferrous sulphate and ferrous gluconate was found. In primary iron-deficiency anemia, an excellent clinical and hematologic response can be obtained with doses of 600 mg. ferrous sulphate or 1500 mg. ferrous gluconate daily. With this dosage, no patient complained of symptoms of intolerance. At follow-up three to twelve months after treatment, all symptoms were cured and no case had relapsed. Therefore, iron therapy after the blood picture has been restored to normal is unnecessary.

Oral Treatment of Pernicious Anemia. Oral treatment of pernicious anemia with Biopar, a preparation containing vitamin B_{12} and an extract of hog duodenal mucosa, has been studied in twenty-two patients. Thirteen patients, who had previously been treated satisfactorily with parenteral vitamin B_{12} for at least one year, received Biopar therapy for up to five years. After three and a half years, serum vitamin B_{12} was abnormally low in most patients, and hematologic relapse occurred in two patients after four to five years. Nine patients with previously untreated pernicious anemia showed a satisfactory initial response to Biopar therapy, but one relapsed after two and a half years and in four others the vitamin B_{12} in the serum did not reach a satisfactory level. Serum vitamin B_{12} reached the normal range in the remaining four; in two, normal values were still found after five years' treatment. This oral treatment cannot be considered reliable for maintenance of patients with pernicious anemia.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 81, October 15, 1959

*The incidence of anemia in infancy and early childhood among Central Arctic Eskimos. F. J. Sellers, W. J. Wood, and J. A. Hildes.—p. 656.

Anemia in Young Eskimo Children. Anemia in white children under five years of age is more frequently found in the lower social strata. That this is a result of dietary deficiency is indicated by their response to the administration of iron. Anemia is common among Eskimo infants and young children in the Central Arctic regions. In questioning Eskimos about the children's diet, it was found that infants usually receive only breast milk and that other foods are not begun until after the first birthday. Even then, the diet consists largely of bannock and breast milk. Breast feeding is continued for three or four years or until another child makes it impossible to continue. It is only after this that meat becomes a staple in the diet. Eskimo mothers rarely masticate meat to feed it to the young child—a common practice in former times. Although these findings suggest a nutritional anemia as the cause of low hemoglobin values in young Eskimo children, further studies are necessary. Probably the moderate malnutrition, the frequent occurrence of infections, and the anemia are interrelated.

FOOD RESEARCH

Vol. 24, September-October, 1959

*Organic acids in coffee in relation to the degree of roast. C. Lentner and F. E. Deatherage.—p. 483.

*Composition of certain species of fresh-water fish. II. Comparative data for 21 species of lake and river fish. C. E. Thurston, M. E. Stansby, N. L. Karrick, D. T. Miyauchi, and W. C. Clegg.—p. 493.

*The vitamin and amino acid content of drip obtained upon defrosting frozen pork. A. M. Pearson, R. G. West, and R. W. Luecke.—p. 515.

Effects of cathode ray and gamma ray irradiation on the anthocyanin pigments of strawberries. P. Markakis, G. E. Livingston, and I. S. Fagerson.—p. 520.

*A comparison of the gelation properties and palatability of shell eggs, frozen whole eggs, and whole egg solids in standard baked custard. G. A. Miller, E. M. Jones, and P. J. Aldrich.—p. 584.

*Some factors affecting the stability of frozen white sauces. E. M. Osman and P. D. Cummisford.—p. 595.

Organic Acids in Coffee. The relation of organic acids in coffee to the degree of roast is reported. The acids present in green as well as in roasted coffee are listed. Chlorogenic and citric were found to be the predominant acids. There is a simultaneous formation and decomposition of organic acids during roasting. This explains why the *p*H of coffee brews reaches a minimum with a light roasted coffee.

Composition of Fresh-Water Fish. Twenty-one species of fresh-water fish of the Central States area were analyzed for their proximate composition, and eight of these species for their content of sodium and potassium. The results are presented in tables. In general, the composition of these fish was uniform. The exceptions, however, demonstrate the wide variation in composition that sometimes exists both among the different species of fish and among the individual fish within a single species. The influence on composition of size of fish, season, and area of capture is still being studied.

Vitamins and Amino Acids in Pork Drip. The most obvious change which occurs on thawing frozen meat is the exuding of a blood-like fluid commonly called drip. In this study it was shown that the drip from frozen pork contained considerable amounts of the B-vitamins and the amino acids. The percentage of the B-vitamins in the drip ranged from 4.15 for riboflavin to 10.69 for niacin. With the amino acids, the losses were from 7.15 per cent for tryptophan to 11.08 per cent for isoleucine. Losses for amino acids were more uniform than for the B-vitamins. The magnitude of the losses did not appear to be associated with the solubility in water of the individual amino acids or B-vitamins, which would indicate that the losses in drip, at least in part, are due to the leaching of more complex substances.

Properties of Four Types of Eggs in Custard. The gelation properties and palatability of shell eggs, homogenized frozen eggs, blended frozen eggs, and reconstituted spray-dried whole egg solids in standard custard baked to internal temperatures of 86°, 88°, and 90°C. were compared. Optimal gelation was produced at an internal temperature of 86° to 88°C. in shell and frozen egg custard, but not in dried egg custards. Evaluations of the quality of crust, inside color, aroma, and flavor indicated no significant differences between shell and frozen egg custards, but custards made with dried egg solids were less desirable.

Stability of Frozen White Sauces. In this study of the stability of starch-thickened products, it was indicated that retrogradation of starch was probably the major factor affecting stability. The rate of retrogradation varied greatly with different starches and starch fractions. Tapioca amylopectin and waxy rice flour produced white sauces of about the same stability, greater than that of any other thickening agent tested. Constituents of milk and of flour other than starch also appeared to exert appreciable effects on stability.

FOOD TECHNOLOGY

Vol. 13, October, 1959

*Effect of pretreatment and type of packaging material on quality of frozen fried chicken. A. F. Carlin, R. M. V. Pangborn, O. J. Cotterill, and P. G. Homeyer.—p. 557.

*Microbiological aspects of pressure packaged foods. III. The effect of packaging procedures. E. Wheaton and P. W. Hardy. —p. 571.

Effects of certain pesticides on flavor of frozen strawberries. D. A. Tichenor, J. G. Rodriguez, and C. E. Chaplin.—p. 587.

Packaging Frozen Fried Chicken. The degree of precooking was tested to determine whether the flavor of partially precooked frozen broilers was approximately the same as that of a completely cooked frozen product. After fifteen weeks' storage at 0°F., untreated broilers were superior to precooked broilers in all palatability factors tested. The kind of packaging did not significantly affect the flavor changes that occurred in untreated or in precooked broilers. Broilers precooked for 3 min. prior to freezing developed more off-flavor than broilers precooked for 10 min. Flavor changes occurred in the meat as well as in the skin.

Microbiologic Aspects of Pressure Packaging. The increasing interest in pressurized foods stored at room temperature makes it necessary to focus attention on microbiologic problems with respect to prevention of spoilage and assurance of wholesomeness. Significantly lower incidence of growth occurs when cans are gassed while the product is still hot, compared with cans gassed after the product has cooled to room temperature. It appears possible for the product to become contaminated during gassing if organisms are present in the valve stem. In a few cases, mold from the product in the dispensing orifice penetrated into the can. Thus further work on the effect of valve construction and use appears warranted. Although growth of test organisms in some cans may be partly explained by high initial load and the resistant strains employed, results suggest that proper microbiologic control in the form of good sanitation should be stressed.

HOSPITAL ADMINISTRATION

Vol. 4, Fall, 1959

*The crucible of choice: hospital decision-making and the primary group. R. N. Wilson. —p. 6.

*The meaning in shared communication symbols. A. L. Porterfield.—p. 32.

Decision-Making and the Primary Group. Although this article concerning decision-making is directed to the hospital administrator, much of it could be applied to the dietary administrator just as well. A discussion of the range of functions and techniques used by the administrator to reach decisions and the criteria of choice he can use are included in this article. The author feels that the primary group in which each member is able to interact with every other member is the natural locus of most major hospital decisions and a necessary part of decision-making.

Meaning in Shared Communication Symbols. Social interaction and communication are components of one another. The man who is talking must know his own biases and his own position. He cannot help responding to others as he sees them, but the more accurately he sees them as they see themselves, the better he can communicate with them. Principles necessary for developing social interaction are discussed.

JOURNAL OF AGRICULTURAL FOOD CHEMISTRY

Vol. 7, October, 1959

*Pesticides in milk and meat.—p. 665.

*Significance of pesticide residues in milk and meat. G. C. Decker.—p. 681.

*Effects of feeding low levels of insecticide residues on hay to dairy cattle on flavor and residues in milk. G. G. Gyrisco, L. B. Norton, G. W. Trimberger, R. F. Holland, P. J. McEnerney, and A. A. Muka.—p. 707.

Pesticides in Milk and Meat. Studies of population groups exposed to pesticides for long periods fail to show any differences in the incidence of illness or death due to pesticides. In one of the few controlled studies to date, DDT fed to a group of volunteers for a prolonged period had no detectable effect. All evidence to date has failed to substantiate the charges that pesticide residues cause aplastic anemia, leukemia, psychoneuroses, virus-like diseases, or other ailments. Until methods of clinical evaluation become much more refined, it probably will be impossible to detect the effects of the residues now found.

Significance of Pesticide Residues. The Miller Amendment to the Food and Drug Act provides for the establishment of tolerances for pesticide residues on raw agricultural products. Meat and milk were not specifically mentioned, but it was generally assumed they would fall within this act. Tolerances for specified pesticides in the fat of various animals have been established, but tolerances in milk have not as yet been investigated. As matters stand today, there is no established tolerance other than zero p.p.m. for any pesticide in milk, and no one apparently wants this responsibility. Even though milk has a unique position in the diet, there is no reason why it should be set apart and worshipped like the sacred cow of India when the establishment of safe tolerances appears possible. The author questions if reluctance to tackle problems of pesticide residues is a new scientific version of taking the Fifth Amendment.

Insecticide Residues in Milk. In 1950, a three-year study was initiated on the various effects of feeding insecticide-treated hay to dairy cattle. This is the final, complete report of that work. Low levels of aldrin, lin-

dane, DDT, parathion, and methoxychlor residues on hay up to 10 p.p.m. were fed for periods up to three months. No parathion or methoxychlor was found in any of the milk samples. No lindane was found in the milk in the 1950-51 experiment, but in 1951-52 the mean lindane residue content for all sampling dates was significantly greater than that of the check. Small but significant amounts of DDT and aldrin were present in the milk when cows were fed 10 p.p.m. of each for one month. There were no off-flavors or odors attributable to the feeding of any of the insecticides.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 171, October 17, 1959

*Phenmetrazine for obesity. Foreign Letters—Sweden.—p. 1026.

*Why strict dieting for diabetes? Foreign Letters—Sweden.—p. 1027.

Vol. 171, October 24, 1959

*Deterioration of vitamin D when mixed with calcium salts. E. M. Nelson. Council on Foods and Nutrition.—p. 1103.

Vol. 171, October 31, 1959

*Emotion and gastric activity. C. T. Seymour and J. A. Weinberg.—p. 1193.

*Radioactivity in foods. C. L. Comer. Council on Foods and Nutrition.—p. 1221.

*Ascorbic acid levels and influenza. Foreign Letters—India.—p. 1248.

Phenmetrazine for Obesity. It is reported that many patients treated for obesity with phenmetrazine have become manic. It has also produced addiction. Because the drug is so dangerous from the psychiatric point of view, it has officially been classed as a narcotic.

Strict Dieting for Diaebtes. Statistics are presented indicating that the risk of renal and retinal complications in diabetes may be reduced by strict adherence to an appropriate diet. Before 1936, dieting was enforced to keep glycosuria below a certain level. After that year, patients have been allowed a fairly normal diet as long as they were free of glycosuria. Involvement of the kidneys has been seven times more frequent in the second period. Retinal involvement has also been more frequent.

Vitamin D Mixed with Calcium Salts. It has been known for twenty-five years that vitamin D is not stable when mixed with a preparation containing 25 per cent or more of minerals, such as various calcium salts. Some manufacturers have tried to compensate for this deterioration by adding vitamin D in excess of the amount declared, but this is unsatisfactory due to the uncertain rate of loss. About two years ago, different forms of the so-called stabilized vitamin D came into use. Vitamin D in powdered form is coated in such a way that it is protected from air, but it is not known how well these coated preparations will withstand the pill-making process. Most pharmaceutical manufacturers usually have been prompt in discontinuing unsatisfactory preparations, although a few have been reluctant to do so. With a chemical method for detection of vitamin D now available, there should be no reason for continued distribution of unstable products of this type.

Emotion and Gastric Activity. The effect of emotional tension on gastric activities before and after vagotomy for duodenal ulcer was studied. Prior to surgery, there was a reliable increase in gastric activity with emotional distress. The motility and tonicity of the stomach increased noticeably as shown by fluoroscopy and X-rays. After vagotomy, overt signs of emotional distress judged to be equivalent to pre-operative response were easily aroused. However, neither the acid nor the volume increased significantly. Since vagotomy was followed by healing of the ulcer in every instance, these findings strengthen the conviction that emotional influences play a role in the causation of duodenal ulcer.

Radioactivity in Foods. A leading authority in the field of radiation biology briefly discusses radioactive residues in foods. The relative hazard of radioactive materials is governed by the amount released into the environment, physical half-life, efficiency of transfer through the food chain to the human diet, degree of absorption by the body, and length of time retained in the body. Contaminants can reach the human being from vegetation, from products such as meat and milk, and from the atmosphere itself. A diagram of this is given. A comparison of the radioisotopes causing the most concern—iodine, barium, strontium, and cesium—is tabulated, as are the effects of radiation on man. At present, there is no indication for a change in our dietary habits. Research on this problem must continue.

Ascorbic Levels and Influenza. Workers in India have reported the estimation of the ascorbic acid level in whole blood to be of greater significance in assessing nutritional status than that of serum or plasma. The plasma value represents only the immediate nutritive or metabolic level depending on the recent dietary intake. They studied the blood ascorbic acid level in sixty-six children. In twenty-eight, estimations were done before and after an influenza epidemic, and in the rest only after the epidemic. Blood ascorbic acid in children with no history of influenza was higher than in those who had had the disease.

THE JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION

Vol. 21, September, 1959

*Today—a grand and awful time. A. Guthrie.—p. 178.

New developments in nutrition. J. M. Leichsenring.—p. 189.

*Training the non-professional worker. M. Gillam.—p. 196.

*Commercial freezing of foods. C. C. Strachan.—p. 200.

Today—A Grand and Awful Time. This paper was presented at the ninth annual memorial Ryley-Jeffs lecture of the Canadian Dietetic Association by Anne Guthrie, world traveller and lecturer. In this inspiring message, Miss Guthrie passes on some of her experiences and knowledge which she has attained in her work with the United Nations. In her contrast of the grand and of the awful of today, she states that we all must work to make the world a better place. She closes with five suggestions for doing this. First, we will need more knowledge, more awareness of the world we live in. We will also need understanding, a sense of humor, and courage, especially intellectual courage. Last, we must care about the world and must increase our capacity to love all people.

Training Non-Professional Workers. The course for Food Service Supervisors at Michigan State University is described. Such training programs are giving status to the position of supervisor and non-professional workers in the dietary department, as well as permitting the dietitian to function more effectively. The possibility of an organization of food service supervisors is being explored at present by a committee of The American Dietetic Association.

Commercial Freezing of Foods. Canada lagged for a time in the production and consumption of frozen foods. Distribution facilities were partly to blame. However, now there is a continually increasing demand for this type of product. The author, who is in the Research Branch of the Canada Department of Agriculture, presents up-to-date information on various aspects of freezing foods. Of interest is dehydrofreezing which is a new method of combining dehydration and freezing to produce a good food product. Another new trend is boil-in-the-bag, in which the product is packaged in a transparent plastic pouch.

JOURNAL OF HOME ECONOMICS

Vol. 51, October, 1959

*Refrigerated cake batters. P. N. Donahey and R. Jordan.—p. 705.

Refrigerated Cake Batters. Results of a study of refrigerated cake batters made with two kinds of leavening agents and stored from two to twelve days are reported. The leavening agents were a sulphate-phosphate baking powder and a stabilized dicalcium phosphate combined with baking soda. None of the cakes baked from the refrigerated batters were of as good quality as those from freshly mixed batters. There was a marked decline in the palatability scores between the initial values and those for cakes baked from batters stored two days; thereafter, the decline was more gradual. Cakes in which dicalcium phosphate and soda were used were of larger volume than those made with the sulphate-phosphate baking powder, indicating less loss of leavening gas in these stored batters.

THE JOURNAL OF NUTRITION

Vol. 69, October, 1959

*Riboflavin in the blood and urine of women on controlled diets. N. H. Morley, M. A. Edwards, I. Irgens-Moller, M. J. Woodring, and C. A. Storvick.—p. 191.

*Serum polyunsaturated fatty acids in groups of Africans with low and high fat intake. O. A. Roels, P. Leurquin, and M. Trout.—p. 195.

Riboflavin in Blood and Urine. Determinations of the riboflavin content of various fractions of fasting blood and of concurrent 24-hr. urinary excretions were made for seven subjects during thirty days of a controlled riboflavin intake of 1.4 mg. per day and for bound and free riboflavin in the fasting blood of women with unrestricted intake. The ability of the individual to maintain a characteristic level of riboflavin in each blood fraction was shown, although individual differences for the white cell fraction were not as distinct as for the other fractions. There appeared to be a gradual trend toward lower levels for red cell riboflavin for all subjects. Adaptation to a change in intake was apparent in the trends for urinary riboflavin excretion for all subjects during the first fourteen days. Large riboflavin excretions were observed for an obese subject on the controlled intake.

Polyethenoid Acids in African Sera. The total fatty acids and the polyunsaturated fatty acids of the sera from various sex and age groups of two African tribes, one on a low-fat (6.8 per cent) intake and the other on a high-fat (37.8 per cent) intake were investigated. There were no significant differences between the two tribes in total serum fatty acids, despite their vastly different dietary fat intake. Differences between the sums of the polyunsaturated fatty acids for both groups were highly significant when this sum is expressed either in milligrams per 100 ml. serum or as a percentage of the total serum fatty acids. The significantly higher level of polyethenoid fatty acids in the serum of the group with the greater fat intake was due to their considerably higher serum levels of dienoic and tetraenoic fatty acids, although their levels of trienoic, pentaenoic, and hexaenoic serum fatty acids were significantly lower than those of the group with the low-fat diet.

THE JOURNAL OF PEDIATRICS

Vol. 55, October, 1959

*Studies on human lactation. Relation between dietary protein and the various nitrogenous constituents of human milk. M. G. Karmarkar, H. R. Chokshi, V. K. Shah, and C. V. Ramakrishnan.—p. 481.

Human Lactation. Collections were made of equal amounts of all foods consumed by the subject per day, including snacks, beverages, and dietary supplements in the form of vitamins, minerals, and so on, of sixty lactating women of normal health living in and around Baroda, India. They were in lactation for three to four months. Initial increases in dietary protein were accompanied by an increase in the total nitrogen and protein nitrogen in their milk and a decrease in the free amino acid nitrogen content. A further increase in dietary protein had no effect on the amount of these constituents in milk.

THE LANCET

No. 7099, September 19, 1959

*Assessment of calcium excretion from the urinary calcium/creatinine ratio. B. E. C. Nordin.—p. 368.

No. 7102, October 10, 1959

*Serum-cholesterol, diet, and coronary heart-disease. A. G. Shaper and K. W. Jones.—p. 534.

Assessing Calcium Excretion. Mean 24-hr. outputs of calcium and creatinine were measured in duplicate on fifty "normal" subjects. The mean ratio of calcium to creatinine was 0:16. The urinary calcium:creatinine ratio ranged from 0:03 to 0:28. There was very little difference between the calcium:creatinine range in fifty-four subjects on free diets and in seventeen who had been on a low-calcium diet for three full days. The calcium:creatinine ratio, measured throughout the 24 hr. in five normal subjects, did not rise above 0:28 or fall below 0:03. Measurement of the calcium:creatinine ratio in various clinical conditions revealed a number of values above and below the suggested normal range in those conditions known to predispose to hypercalcuria and hypocalcuria respectively. The small difference between the calcium:creatinine ratios in subjects on low-calcium diets and free diets emphasizes the relatively small effect of diet on urinary calcium output.

Serum Cholesterol, Diet, and Coronary Heart Disease. A study was made of the dietary background and serum cholesterol levels in African and Asian males ages twelve, twenty, and over forty years in Kampala, Uganda. These two racial groups differ markedly in their liability to coronary heart disease. At all three ages, Africans and Asians show a considerable difference in the mean level of serum cholesterol which corresponds to their different consumption of fat. These data support the view that a rise in serum cholesterol is not a necessary accompaniment of aging. If an etiologic relationship does exist between coronary heart disease and the serum cholesterol, a level of 170 mg. per 100 ml. is suggested as "ideal."

MILITARY MEDICINE

Vol. 124, October, 1959

*Nutrition research for man in space flight. B. Finkelstein and A. Taylor.—p. 725.

Nutrition for Man in Space Flight. The solution to the problem of feeding in high performance aircraft and space vehicles is not solved. Needs pertain to: (a) a greater variety of concentrated and precooked dehydrated foods; (b) further advances in the cold sterilization of food; (c) improved methods of food packaging; and (d) development of light weight food service equipment. In addition, a wealth of information is still needed regarding nutritional requirements and the acceptability of food when man is exposed to weightlessness and is confronted with varying kinds and degrees of stress. Evidence indicates the feasibility of using a high-protein liquid diet for preliminary space flights. The ability of man to eat under prolonged conditions of weightlessness is yet to be determined.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 59, October 1, 1959

*The controversy regarding the calcium requirement. F. A. Johnston.—p. 3635.

Controversy on Calcium Requirement. Individuals may adapt to a lowered calcium intake by absorbing a higher percentage of the calcium in the food, by excreting less in the urine, and by secreting less in digestive juices. There is evidence that some individuals can adapt to low-calcium diets, but we do not know what conditions determine the ability to adapt, how long it takes to adapt, and to how low a level a person can adapt. There is certainly a need for some calcium in the diet, because there is always some in the feces and some in the urine. There are small amounts lost in skin, hair, nails, perspiration, and so on. If these losses were not replaced, individuals undoubtedly would in time become decalcified. The minimum calcium needed for replacing these losses in the adapted individual is as yet unknown. Probably most people can adapt to 500 mg. per day. The 800 mg. calcium a day for adults recommended by the Food and Nutrition Board may supply much more calcium than is needed, but until more is known about the ability of individuals to adapt to low intakes, the recommendations should not be lowered for people in the U. S., where most people have no difficulty in obtaining that amount. The recommendation of 2 cups milk a day for adults should be continued, even if much less than 800 mg. calcium is eventually recommended, because milk supplies other important nutrients.

NUTRITION REVIEWS

Vol. 17, October, 1959

*Present status of dietary treatment of diabetes. W. H. Daughaday.—p. 289.

*Comparative cholesterol lowering effects of niacin and dietary lipids.—p. 291.

Present Dietary Treatment of Diabetes. Since the advent of insulin, there have been two theories concerning dietary regulation of diabetic patients. One has been the strict adherence to diet and the other, the "free" diet. It is improper to equate good control with a strict diet, and poor control with the free selection of nutrients. It is also apparent that

duration of diabetes is the most important factor determining the incidence of diabetic vascular lesions and that even the best of control fails to guarantee immunity from these complications. Two aspects of the composition of the diabetic patient's diet continue to receive attention. The first is a way to provide carbohydrate in a form which can be better utilized than glucose. It appears that sorbitol is advantageous in its slow rate of absorption. The second aspect of the diabetic diet which is current concerns the possible harmful effect of fat. However, there is as yet no direct evidence to make major qualitative shifts in fatty acids justified.

Comparative Cholesterol-Lowering Effects. Horlick found that in human subjects fed a low-fat diet, ethyl stearate or hydrogenated soybean oil caused a decrease in plasma cholesterol. Corn oil caused a decrease only in the beta-lipoprotein cholesterol. The decline in serum cholesterol observed during the low-fat period was unaffected by the addition of niacin. The preceding findings are discussed. The problem of clinical evaluation of serum lipid lowering effects is a complex one.

PHYSIOLOGICAL REVIEWS

Vol. 39, July, 1959

*Dietary regulation of serum cholesterol levels. O. W. Portman and F. J. Stare.—p. 407.

Regulating Serum Cholesterol. This review is comprised of the following series of dietary factors: (1) steroids, including (a) cholesterol and its analogues (b) phytosterols, and (c) bile acids; (2) dietary fat, including the level and types of fat and the nature of the constituent fatty acids; (3) nitrogen-containing compounds, including the level and type of protein, amino acids, purines, and pyrimidines; (4) carbohydrates, including level and type; (5) indigestible residue or fiber; (6) minerals; (7) vitamins and antagonists; (8) and interaction of multiple factors. In addition to presenting a complete review of the subject, this paper includes a list of 399 references.

PUBLIC HEALTH REPORTS

Vol. 74, October, 1959

*The nutritionist in organized home care. M. Kaufman and M. S. Bryan.—p. 873. Meals-on-Wheels projects.—p. 923.

The Nutritionist in Home Care. Two nutrition consultants explain how nutritionists can aid staff members of a home-care team in recognizing and interpreting the importance of diet in the care of patients with long-term illness. The main objective is to help each patient achieve and maintain the diet which best meets his needs. This objective can be accomplished when the dietary teaching considers the patient's social, emotional, and financial situation as well as his physical problems; when diet is the concern of all workers attending the patient; and when changing dietary needs are a part of the comprehensive plan for care.

SCIENCE

Vol. 130, October 9, 1959

*Effect of dietary fats on fatty acid composition of human erythrocytes and chick cerebella. M. K. Horwitt, C. C. Harvey, and B. Century.—p. 917.

Effect of Dietary Fats. Although it has been generally acknowledged that the composition of depot and plasma lipids can vary with the type of fat ingested, it had not been proved that structural lipids, such as those found in brain or in the stroma of erythrocytes, could also be varied by diet. In this study increasing the ingestion of linoleic acid-containing fats increased the deposition of linoleic acid in human erythrocytes and in chick cerebella. Such changes are probably causally related to the tocopherol requirement, the incidence of chick encephalomalacia, and the peroxide hemolysis test. Whether similar mechanisms are involved in the ability of unsaturated oils to lower serum cholesterol levels remains to be determined. It is of interest that the same lipid mixtures which increased the tocopherol requirement (tocopherol functions as a biologic antioxidant) and promoted encephalomalacia in the chick also reduced plasma cholesterol levels in the rat and in man.

TEXAS STATE JOURNAL OF MEDICINE

Vol. 55, October, 1959

*Management of obesity. G. A. Goldsmith.—p. 792.

Management of Obesity. Dr. Goldsmith stresses that the management of obesity has been far from successful, and that much more information is needed as to pathogenesis and methods of treatment. She feels that the most important items in therapy are motivation, encouragement, and a good patient-physician relationship. The diet should be restricted in calories but adequate in all essential nutrients. A typical reducing diet (1200 calories) used by Dr. Goldsmith and also a food exchange list are presented in tables. Exercise is discussed as a part of weight reducing programs. Treatment of obesity must be individualized and closely supervised. New habits of eating and of activity must be developed if normal weight is to be reached and maintained.

UNITED STATES ARMED FORCES MEDICAL JOURNAL

Vol. 10, October, 1959

*Enerzy requirements of military personnel during basic training. C. F. Consolazio, J. M. Hawkins, O. C. Johnson, and T. E. Friedemann.—p. 1133.

Energy Requirements of Military Personnel. During the past four years, four nutrition surveys were carried out in Army camps, three with basic training companies and one on training cycles of airborne trainees. Total food consumption corrected for body weight changes from all sources averaged from about 3700 to 4230 calories daily at the various camps. This included 727 calories per man per day from sources outside the mess. Fat consumption averaged 42.4 per cent of the total calories.

ADULT LEADERSHIP

Vol. 8, October, 1959

*How to get more out of meetings. A. P. Torrence.—p. 105.

Successful Meetings. An effective and fruitful meeting needs to function according to basic democratic premises. The author translates this as, "The success of meetings is resident in the leadership of the meeting, in the group itself, and in the individual members of the group." All of these are inextricably tied together and they cannot successfully be separated except for purposes of analysis. A few of the topics covered in this article are: leadership skills, reasons for the failure of meetings, and the preparation, participation, and follow-up which should be a part of every democratic meeting.

AMERICAN RESTAURANT

Vol. 43, October, 1959

*What's new in restaurant restrooms? N. J. Radder.—p. 56.

*General weekly cleaning duties.—p. 59.

Restroom Updating. "Gone, in the more progressive restaurants, is the washroom that was a purely utilitarian room with no claim to beauty or distinction and barely up to minimum standards of sanitation." Details are given on planning and equipping a more appealing lounge and one that will provide higher and more easily maintained standards of sanitation.

Cleaning Duties. A series of duty cards which are given to employees in each department of an average sized restaurant are illustrated in this article. These cards provide a checklist of cleaning assignments for each day of the week for waitresses, bus boys, fountain workers, and other employees and insure higher levels of sanitation and greater efficiency in maintaining them. Included on each card are detailed instructions and procedures to be followed in accomplishing each cleaning task.

DINER DRIVE-IN

Vol. 18, October, 1959

*Kitchen shortcuts. D. E. Lundberg.—p. 74.

Tremendous Trifles in Cookery. Gathered from a conference at an Army Quartermaster School, the author lists some of the kitchen techniques that, while never having been subjected to scientific observation, are none-the-less of real value. These tricks are seldom written in a cook book but adhere to the domain of the secret and oft bewildering talent of the chef.

FAST FOOD

Vol. 58, October, 1959

*What are the design trends for 1960? H. L. Post.—p. 64.

Design Trends. The year 1960 is seen as expanding the application of new and improved equipment. There has been a tendency to increase the use of food facilities specialists when planning both small and large food operations. "A good plan—with the right new equipment properly placed—could well be called the greatest time and labor saver of all." New trends are toward more automation in food service handling, the use of more convenience foods, portion-control purchases of meats and other foods, and more "progressive" cooking in small quantities. To make proper use of the new and improved equipment which is rapidly appearing on the market, purchases must be kept in balance with the needs of the individual operator.

FOOD ENGINEERING

Vol. 31, October, 1959

*Traveling FE editor witnesses food revolution in Europe. F. K. Lawler.—p. 46.

*The case of 'split' tech staffs. L. E. Slater. —p. 49.

*Factory 'dining' perks away-from-home sales. E. Hochstim and R. C. Lifquist.—p. 60.

Food Boom in Europe. Food processing and consumer buying habits of several European countries are experiencing a radical departure from the past. Britain, France, Germany, Denmark, and the Netherlands show a strong swing to more abundant production of frozen and canned foods. These new products are now being sold in self-service super-markets which are rapidly replacing the smaller and more traditional specialty stores. The British are adopting many American food trends, the Germans appear to be setting the pace for the entire Continent, the French are modernizing canning plants, the Danish are concentrating on meat exports, and the Dutch are pin-pointing their export drive on the U. S. market.

Splitting the Technical Staff. The author brings into focus the thesis that the food industry has now progressed to where it is ready for "split-level" technical employment. "In short, its technical people should be carefully sought at two levels—and perhaps even three." The division into pro, semi-pro, and technician levels is seen as curbing waste of skills and assuring top return from expensive talents. The author advocates four points for measuring an operation's need for a split-level technical staff.

Burgeoning Industrial Feeding. On-the-job meals have bloomed into a $260 million market of foods and beverages. The food and beverage firms are setting a fast pace among industries providing these services. A study revealed that expenditure patterns differ between the factory and the home. A bar chart shows that the industrial meal planner devotes a larger share of the budget to dairy items, baked goods, and beverages and less to meats, fruits, and vegetables.

FOOD SERVICE

Vol. 21, October, 1959

*The dynamics of restaurant design. M. Lapidus.—p. 33.

*Modernize now for profits tomorrow. H. J. Ashe.—p. 50.

Designing a Restaurant. The restaurant industry is slowly realizing what other industries have known for some time, i.e., the package sells the product. The designer of a restaurant must be constantly aware that this is a competitive world and that the outside of a restaurant is every bit as important as the sauce or gravy on the food inside. To the author, lighting is probably the most important thing in a restaurant; next, the materials. "In all of our restaurant thinking we try to think of giving people a gourmet experience. The appointments and the background, the color and the lighting do not improve the taste of the food one iota; but they improve the appreciation of the foods and that is as important as the work the chef is doing in the kitchen. The restaurateur must be awake to the fact that he is selling *more* than food and that he needs *the expert.*" Specialty restaurants are flourishing today not because people want one specific type of food, but because they want a more dramatic background than they find at the family dining table at home.

Modernize Now. The restaurant business has been given a tax break by Congress. Liberalized depreciation rules are government-blessed devices to discourage obsolescence. These new income tax concessions actually encourage you to modernize today for future profits. The author tells how the amended Internal Revenue Code has been liberalized and operates.

HOSPITALS

Vol. 33, October, 1959

*Cooperative planning builds better kitchens. D. T. Walch.—p. 81.

Vol. 33, November 1, 1959

*What the public thinks of hospitals. E. Roper.—p. 55.

8 ways to break Sunday supper monotony.—p. 89.

Shared Kitchen Planning. The author explains the stages and methods followed in planning new dietary facilities. She advocates that each aspect of the planning should be based on the results of conferences between the architect, administrator, dietitian, and the dietary department staff. She also illustrates methods of checking traffic flow and certain equipment specifications.

The Public Speaks on Hospitals. A study undertaken by a firm of marketing consultants produced a few eye-openers about public attitudes, reactions, and ignorances toward various apects of hospitals and hospital care. "The over-all public sentiment toward hospitals in New York City was found to be one of moderate approval. But beneath this facade of rather tepid approval, there were some telling contrasts in the public's evaluation of hospitals' performance in different areas." The two major types of complaints were that hospital personnel were rude, inattentive, inconsiderate; and administrative arrangements were inadequate, with the common criticism being that hospitals were understaffed, not clean, overcrowded, and served poor food. The author analyzes many of the complaints and offers recommendations for combating and improving the hospital functions which received the strongest and greatest amount of criticism from the public.

INPLANT FOOD MANAGEMENT

Vol. 6, October, 1959

*How stainless cuts carrier cafeteria costs. J. Carroll.—p. 38.

*How to keep stainless clean easily and efficiently. R. E. Paret.—p. 41.

Stainless Cuts Costs. Illustrating how operation costs in a manufacturing company's cafeteria can be reduced by as much as 50 per cent with proper planning, the author attributes a major role in these savings to the extensive use of stainless steel. The cafeteria and kitchen layout, dimensions, decor, stainless food walls, and the use of the "shopping center" concept are covered.

Keeping Stainless Steel Clean. Recommendations for general cleaning procedures and maintenance of stainless steel are noted. Special types of cleaning problems are also examined. A "Stainless Steel Cleaning Chart" is presented which includes suggested types of cleansing agents, methods of application, and the effect each has on the finish.

INSTITUTIONS

Vol. 45, November, 1959

*Developing products for tomorrow. Experimental oven ups speed, lowers fuel consumption. F. D. Borsenik and J. L. Newcomer.—p. 12.

*Current trends in cafeterias. Part II.—p. 18.

*Central warehousing for food service.—p. 32.

*Pressures and tensions are reduced with development of a management philosophy. D. Greenaway.—p. 54.

*Fresh, canned, frozen? What is the best buy? —p. 97.

*How to clean, maintain aluminum food service equipment. C. L. Bissonette and J. E. Hall.—p. 100.

*A short course in kitchen design. Part XI: Dish handling procedures, Section II. J. Laschober.—p. 182.

*Why, how, when shall we do our own baking? M. Johnson and S. P. Baragiola.—p. 211.

*Time and motion studies produced work simplification for bakers. F. O. Moosberg. —p. 212.

They do it with mixes. Teach baking skills in 3 weeks.—p. 212.

Convection Ovens. Heartening results are being reported on a new concept in oven engineering and design. Experiments are being carried on with conventional roasting ovens which have had a blower or fan installed and are operated under forced convection. With these currents of heated air being forced over the food, the

Where a poly-unsaturated oil is called for in the diet, **Wesson®** satisfies the most exacting requirements

(—and the most exacting appetites).

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Faithful adherence to any diet is much more likely when foods taste good. The preference for Wesson—amply confirmed by its sales leadership for 59 years—has been reconfirmed in recent tests with brand identification removed. Housewives in a national probability sample indicated marked preference for Wesson, particularly by the criteria of odor, flavor (blandness) and lightness of color.

Wesson's Important Ingredients:

Linoleic acid glycerides	50% to 55%
Phytosterol (predominantly beta sitosterol)	0.4% to 0.7%
Total tocopherols	0.09% to 0.12%

Never hydrogenated—completely salt free

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time needed to cook the product and the amount of fuel consumed are decreased. There were negligible differences in the weight loss of the food cooked in the two types of oven. A table of the results of these experiments is included.

Prompted by the recent experiments at Michigan State University, the editors of *Institutions* inquired into the industry's plans regarding forced convection ovens. As yet, none is on the market, but some food service equipment engineers and manufacturers are showing considerable interest in the potentialities of this type of oven and are doing some research into the subject. The opinions of several representatives of oven equipment companies are expressed in this portion of the article.

Cafeteria Trends. Cafeteria design is one aspect of food service planning that probably represents the greatest emphasis on differences in approach. Five consultants and operators participating in a round table discussion make these divergencies in opinion very clear. Participants air their interpretations of the best approach to such things as how service counter bottlenecks may be eliminated, where the hot food should be located, how much self-service is practical, and how to approach modernizing of in-plant food operations.

Central Warehousing. Multi-unit food service operations are finding central warehousing and/or commissary preparation a profitable approach to cutting costs. The central warehouse has produced economies in centralized purchasing, quality control, and even in the cost of space itself. Three men, prominent in the food service field, record their thoughts on a number of aspects of warehousing and storage in this article.

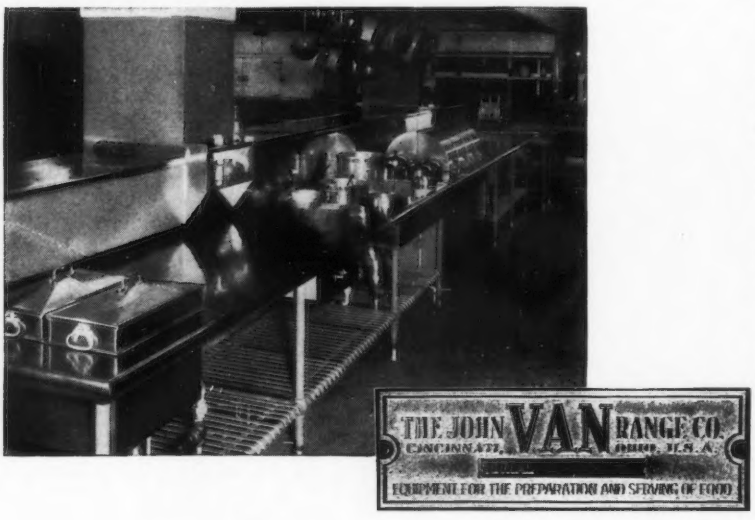
Management Philosophy. A subject which is important to all executives—developing a manager's philosophy—is explored. In this second installment, the price of responsibility, policy, and a workable management creed are discussed. The author states that, "Restlessness in organization is very often anxiety because those below don't know whether the one above approves or disapproves, applauds or condemns. It is very difficult to work in a vacuum without policy, without procedure, and without at least a minimum amount of standard approach."

Apple Buying. A good buy, as fresh apples occasionally are, is not to be passed up, but can the food service operator afford the labor costs involved in using fresh apples? A study was undertaken to indicate the time, steps, and labor cost involved in preparing fresh apples and comparing them with two types of processed apples—canned and frozen. The results of this study are reported, with charts.

Cleaning Aluminum. Aluminum, with its light weight, good thermal conductivity, non-toxicity, and high resistance to corrosion, is an excellent metal for cooking utensils and food service equipment. The authors examine various types of safe cleaners and surface renewing cleaners. The results of experimentation on some of these compounds appear in several illustrations of the comparison tests.

Dish Handling Procedures. A discussion of dishwashing should include sterilization as well as the removal of food waste and soil. Washing with a detergent, rinsing, and sanitizing with hot water are the three steps in the approved commercial dishwashing process. Each is discussed, with recommendations concerning materials, equipment, and techniques for proper soiled dish handling.

Bake Your Own. On-premise baking is often a controversial subject and is approached from the viewpoints of the operator and the equipment consultant in this article. The operator describes the baking unit in her multi-unit food service operation for the University of Illinois campuses in Chicago. The equipment consultant tells of factors to be considered in setting up a baking unit in an established operation and points out some of the advantages to be realized by having the baking done in your own establishment.



at outstanding kitchens you look for Van's mark

When you see an unusually fine food service installation, you will undoubtedly find Van's name plate on the equipment. It is like the name Sterling on the silver you cherish.

If you are planning food service equipment improvements, make use of Van's skill and experience. Illustrations of such installations are in Van's Centennial Book of Installations. Write for it.

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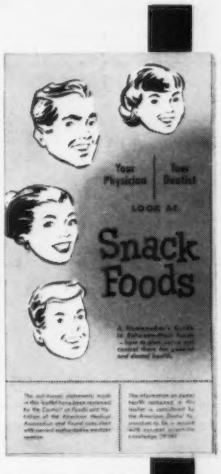
Nature gives us all a second chance on teeth. What we do with the opportunity depends either on luck (good or bad) . . . or on the skill of the physician, dentist, nutritionist or nurse—working with a diet-conscious mother. Which should it be? Luck or plan? And whose responsibility?

Health hardly starts or stops at the gum line. Physicians and dentists may have slightly different points of view. But they both share the same concern for diet and evidence of good or poor nutrition in gums and teeth. Parents, too, are concerned and seek your help.

Snack foods are especially important. They are so often eaten thoughtlessly or at times when it is difficult or impossible to rinse the mouth or brush the teeth. You can't separate snacks from total diet any more than you can exclude dental health from general health or vice versa.

Such professional logic led to the development of the pamphlet featured below: "Your Physician . . . Your Dentist . . . Look at Snack Foods." The 20-page, two-color, illustrated leaflet was planned and produced with the help of the Council on Foods and Nutrition of the American Medical Association as well as the Bureau of Dental Health Education of the American Dental Association. It was designed especially to help *you* in counseling patients and mothers.



Pocket size 3¼" x 6½"

Snack Foods describes the role of different foods in good nutrition; treats the hazards of uncontrolled snacking; discusses calorie control and the prevention of tooth decay. *For review copies or quantities for distribution to patients*, write or mail the coupon today.

ENRICHED . . .

and whole wheat flour foods are listed among the "Essential Four" food groups set up by the U. S. Dept. of Agriculture's Institute of Home Economics. Diet selected from these foods provides ample protein, vitamins and minerals.

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EATING IS FUN—

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Older People, Too

Designed to Aid Proprietors of Small Nursing Homes and Residences. Also Adaptable to Home Kitchens

This attractive booklet is a guide to better food and food service in the small institution. Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving.

This is a project of the Diet Therapy Section of The American Dietetic Association.

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Order from:

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THE MODERN HOSPITAL

Vol. 93, October, 1959

*Is this meeting necessary? R. Pearson.—p. 97.

*The trend is to fewer and better diets. D. Johnson.—p. 140.

Vol. 93, November, 1959

*Supervisors must learn to be good leaders. L. Nadler.—p. 99.

*Fruit gives a party flavor to holiday meals. I. L. Dolan.—p. 124.

Another Meeting? "It seems obvious to me that we have made a fetish of togetherness, elevated group dynamics to the status of a holy cult, and by insisting that every forward step be taken by a team, guaranteed that some of the most important forward steps will never be taken at all." Illustrating how groups can seldom be authentically creative, the author finds it difficult to imagine the Mona Lisa or the 23rd Psalm being the products of a group meeting. "Democracy is not a synonym for mediocrity, but it is a rare group which does not move toward a common denominator that lifts the level of the relatively incompetent only by reducing that of the conspicuously able." The author considers a certain number of meetings necessary, but too often, in his view, they are just another way of saying, "I want my mother." He also believes that we place less faith in our own originality than in that of our co-workers and that fears of this kind account for much of our huddling together.

Fewer and Better Diets. There has been a growing trend toward simplification and standardization of therapeutic diets. "One basic premise must be made: that is, that all diets used in the treatment of diseases are modifications of the normal diet." The principle of diet therapy is the determining factor and not the disease which the patient has, nor the doctor who prescribes the diet. "To impose a secondary disease of some type of dietary malnutrition upon the existing disease may do the patient great harm and most certainly will not help him recover." The author supplies information on the most generally accepted therapeutic diets and also some current opinions on diets for atherosclerosis.

Leadership Skills for Supervisors. A supervisor is not always a leader, but the author says, "A supervisory training program should include recognition of the need for developing leadership skills." A few of these leadership qualities are: ability, initiative, honesty, and personality. The author examines how these skills may be developed by the supervisor wishing to improve himself.

Fruit Brightens Holidays. Holiday menus need not be dull and, especially, in hospitals where a few "extras" can do much to raise the morale of the patients. The author introduces holiday fare variations for breakfast, dinner, and supper, and also gives recipes.

RESTAURANT MANAGEMENT

Vol. 85, October, 1959

*Turkey 365 days a year. A. Easton.—p. 84.

Extended Holiday Fare. Tom Turkey has stepped into the fore as a year-round candidate in the meat eaters' popularity contest. He is getting twice as many votes as he did just a few years ago. In this special section on the "new look" of the turkey, the life and times of the gobbler are given a thorough review. The author examines bird sizes, nutritional values, roasting, stuffing, broiling, pan-frying, deep-frying, and steaming.

WHAT'S NEW IN HOME ECONOMICS

Vol. 23, October, 1959

*The influence of nationality foods on American meals. F. L. Beinert.—p. 68.

*The influence of regional foods on American meals. F. L. Beinert.—p. 69.

*How food additives affect today's foods. D. L. Elliott.—p. 72.

Vol. 23, November, 1959

Main dishes for holiday meals.—p. 34.

Nationality Foods Infiltrate. Foods peculiar to various nationality and ethnic groups are becoming more and more integrated into the general food patterns of the American people. A few of these remain in their original form, but others are receiving a modern American touch as they are gradually adapted into the menu plans of greater numbers of people. The author draws attention to the relatively recent buying trends which show the appearance of Italian, French, Oriental, and many other foreign foods in frozen and canned forms in supermarkets all over the country. The author offers suggestions on how this melding of typically "American" with nationality foods can be used as a topic of study for enriching lessons and demonstrations in the foods classroom.

Regional Foods. "The definition of the typical American diet or of typical American meals is largely a regional matter." In her discussion of regional variations in food patterns, the author proposes that a detailed study of the background and practice in relation to regional foods can and does enrich meal planning and meal preparation lessons. Several ideas for class projects to interest the students are suggested.

Food Additives. The term "food additives" has been much in the news since the passage of the Williams Bill by the Congress last year. Here is some basic information on this subject which should be useful in teaching and telling the story of today's foods. Food processors use food additives primarily to accomplish three things: (a) to aid in the processing of raw materials in the factory, (b) to produce desired properties in the finished product, and (c) to protect quality of the product during distribution. General information on the creation and authority of the Food and Drug Administration and its role is also recounted.

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Your customers will appreciate these finer saltine crackers. They're tastier, flakier and snapping crisp. These top-quality crackers are always perfect in our moistureproof cellophane packets.

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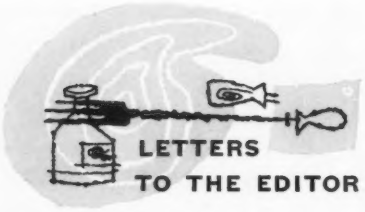


What about "Registered" Dietitians?

TO THE EDITOR:

The statement of the Joint Commission is not as it should be. We have always taken for granted and understood at this office that when we erroneously said "American Dietetic Association registered," we meant American Dietetic Association membership. When we republish, we will use that term.

I am sorry if it has caused misunderstanding and confusion. The Joint Commission, as well as the medical and hospital professions, recognizes membership in The American Dietetic Association in lieu of registration or certification. — *Kenneth B. Babcock, M.D., Director, Joint Commission on Accreditation of Hospitals, Chicago.*

How to Estimate Dietitian-Patient Ratio

TO THE EDITOR:

I would appreciate information on how to estimate the number of dietitians needed by patient load.—*Margaret S. North, H. I. Jones Home, Hartford, Connecticut.*

EDITORS' NOTE:

The problem of the ratio between number of dietitians and the patient load has a number of facets, since the duties of the dietitian in a given hospital, as well as the amount of supervision and technical assistance available, varies. However, an editorial on "Ratio of Dietitians to Patients and Employees" by Charles U. Letourneau, M.D., Margaret Gillam, and Ruth M. Yakel, from the March 1952 issue of the JOURNAL (J. Am. Dietet. A. 28: 238, 1952) might be helpful in assessing this problem.

What Do Blanks in Tables Indicate?

TO THE EDITOR:

I have just completed a review of the November 1959 issue of the JOURNAL, and as usual, the contents proved most informative and useful.

I am currently compiling a reference list of materials covering relationships of nutrition to the various aspects of coronary artery disease. The papers, "Sodium and Potassium in Salt-Water Fish" and "Sodium and Potassium in Puerto Rican Foods and Water" in the November issue will be useful additions to this bibliography.

However, I have a question regarding the article, "Composition of 95 Foods." I notice that values are not listed for the sodium in about 50 per cent of the items in Table 2 and I wonder if the reader would receive the impression that foods such as bacon, regular butter, tomato catsup, and so on, are sodium free. I realize that these examples may appear ludicrous to most dietitians, but I feel that some explanation regarding the "blanks" in the analytical table would have been helpful.—*Jean H. Hankin, Nutrition Consultant, Heart Disease Control Program, Division of Special Health Services, Public Health Service, Washington, D. C.*

EDITORS' NOTE

We regret the confusion caused by the dashes, or "blanks," used in Table 2 to which Miss Hankin refers. The JOURNAL has customarily used dashes in tabulations to indicate instances where no analyses were made or reported by the authors—in other words, when no information is available. When analyses have been made and the result is zero, a zero appears.

In this same article, we are particularly embarrassed by a typographical error in Table 1 with respect to the calcium content of twenty-two foods. The data are actually reported in terms of "mg./100 gm." rather than "mg./2100" as originally published.

Nursing's Interest in Mutual Educational Problems

TO THE EDITOR:

I feel very honored to have had your JOURNAL publish my paper, "The Dietitian on the Nursing Faculty," in your October issue and hope that it will be of value to some of your readers.

I am particularly pleased and hope that you will be, too, that our Department of Diploma and Associate Degree Programs has decided to distribute a reprint of this article to each school which is a member.—*Florence E. Elliott, Director, Study on Cost of Nursing Education, National League for Nursing, Inc., New York City.*

A Dietitian Helps Girl Scouts in Italy

TO THE EDITOR:

I feel you may be interested in knowing that last summer one of your members made a major contribution to the success of our established camp for Girl Scouts of the U.S.A. living in Italy. Betty Lou Guge Johnson gave very generously of her time in planning the menus and in working with the Army Mess personnel who had been assigned to camp to prepare meals for the campers and staff. Our camp is located near Verona, Italy, and provides a camping experience for 129 girls during our four-week session.

Since the success of a camp is so dependent on the campers being served well balanced as well as attractive meals, we were delighted to have someone as capable as Mrs. Johnson in charge of our food service.—*Nancy Campbell, Director, Camp Novare, North Atlantic Girls Scouts, c/o Postmaster, New York.*

Week-End Dietitians Wanted

TO THE EDITOR:

I contacted an officer of the Massachusetts Dietetic Association, and she scouted up five opportunities for a week-end dietitian. How about another mention of "week-end dietitians" in the JOURNAL? Maybe more retired members could join us.—*Alma Coleman, Arlington, Massachusetts.*

The Dietitian in Ceylon

TO THE EDITOR:

I have long been intending to tell you how much I appreciate the JOURNAL, and the May issue in particular. I refer especially to the article, "Establishing Training Programs Abroad," which was of interest and encouragement to me because I took my degree of Bachelor of Science in the Home Science Department of the Women's Christian College, Madras, India, before the revision of its curriculum, which is described.

I read the article with mixed feelings, as it described very aptly many of the problems encountered here, too, in a worse degree. I was delighted that our neighbor India and my own College has met the growing challenge of the need for adequately and thoroughly trained workers in both nutrition and dietetics (especially in hospitals) and has evolved such an excellent training program. I was disappointed and discouraged by the fact that my own country has not yet realized the importance of nutrition and dietetics in her program of preventive and curative health work.

It is, therefore, with great interest and curiosity that I read in the JOURNAL from time to time of the problems and progress of dietetics and nutrition in other countries, especially of the countries that have similar social and economic backgrounds to ours.

I am pleased to have been accepted for membership in The American Dietetic Association and am looking forward to receiving my membership card and pin. I shall be very proud indeed to wear it with my "uniform," which consists of a plain white sari and top (the jacket) with white shoes. The pin will be worn on the shoulder on the left side where the pleats of the sari are fastened. So that's how the first A.D.A. pin in Ceylon is going to make its debut!—*Mrs. Hilmi M. DeSilva, General Hospital, Colombo, Ceylon.*

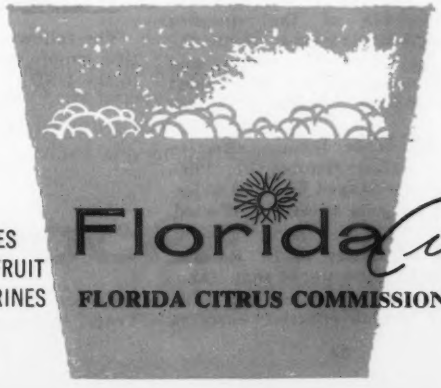
there's no juice like citrus *juice*

As a high-potency source of vitamin C, citrus juice—fresh, frozen, or canned—is unmatched for convenience and economy. The table below shows amounts† of other fruit juices required to supply the 100 mg.* of vitamin C in one glass (7-9 fl. oz.) of citrus juice.

citrus	1 glass
apple	50 glasses
grape	9 glasses
pineapple	3-4 glasses
prune	50 glasses

†Data calculated from: Watt, B. K. et al., U.S. Dept. Agric. Handbook No. 8, 1950; and Burger, M. et al. Agr. & Food Chem. 4:418, 1956.

*This is the peak of the Recommended Daily Allowances for adolescence or pregnancy; 150 mg. during lactation; 70-75 mg. for normal adults.



ORANGES
GRAPEFRUIT
TANGERINES

Florida *citrus*

FLORIDA CITRUS COMMISSION • Lakeland, Florida

Research Needs Listed. At the meeting of the USDA's Food and Nutrition Research Advisory Committee in November, members agreed that new information on human requirements for protein and the amino acids is needed. The committee pointed to lack of knowledge of factors affecting protein requirements when proteins are fed as common foods in customary diets as well as of amino acid requirements, a field in which data are available only on a small number of infants and children who were fed semi-synthetic diets.

Further research about human metabolic response to different types and amounts of fats and fatty acids in food and the relationship between fat and the well-being of human beings is also needed, according to the committee. In addition, more data on the fatty acid composition of foods would be helpful to nutrition workers.

The committee also attached high importance to the problem of pesticide residues in agricultural products, pointing out the need for more research to provide information to protect people from harmful residues carried by human and animal foods.

Other fields in which research could profitably be carried out, according to the committee, involve: development of methods of measuring quality factors in food and relationships of these to properties of foods observable by consumers; and the differences in physical and chemical composition of vegetables and their relationship to cooking quality, color, texture, and flavor.

Dr. Hunscher Honored. Dr. Helen A. Hunscher, Western Reserve University, on October 24 was presented with an Achievement Award at the 14th Annual Institute of the School of Home Economics, The Ohio State University. These awards are made biennially by the Home Economics Alumni Association in recognition of professional achievement and service of distinction to the community. Dr. Hunscher was cited as teacher, researcher, administrator, author, and homemaker.

Cautions about Vitamin E. In an effort to head off possible faddists' claims about vitamin E, the Food and Drug Administration reminds people that the daily diet provides more than adequate amounts of vitamin E for the average individual and that supplementation with this vitamin is not necessary.

Research has now established the need for this vitamin in human nutrition, but only after long years of exacting work with diets especially treated to destroy vitamin E because it is naturally present in abundant quantities in foods and feeds. With this need now firmly established, the FDA has announced that products represented as containing vitamin E are no longer required to bear a label statement stating that the need for this vitamin in human nutrition has not been established. Consumers should be wary, however, of any claims that products offered as sources of vitamin E are necessary to treat or prevent any identifiable nutritional deficiency. A number of court actions have been taken against such products promoted for treating or emphasizing such diseases as sterility, heart disease, and muscular dystrophy. Vitamin E is of no value for such purposes, and "any claim in the labeling of drugs or of foods offered for special dietary use by reason of vitamin E, that there is need for dietary supplementation with vitamin E, will be considered false."

New Definitions and Standards. The Food and Drug Administration has issued a new order establishing definitions and standards of identity fixing the composition of artificially sweetened jams, jellies, and preserves. These provide that artificially sweetened products must have at least 55 per cent by weight of the finished food to be "fruit juice" or "fruit." This fruit content thus will not be less than that required for the corresponding product made with sugar. The standards allow the use of the following safe, non-nutritive sweeteners: saccharin, sodium saccharin, calcium saccharin, sodium cyclamate, potassium cyclamate, calcium cyclamate, or any combination of these.

To protect persons on sugar-restriction against indirect addition of any significant amount of sugar, the standards also limit the amount of dextrose which may be added during processing. (The addition of a small amount of dextrose may be necessary where pectin is used during the jelling process.)

Consumers may identify the newly standardized products by the words "artificially sweetened" prominently displayed on the label as a part of the name of the food. Such jams and jellies need no longer be labeled "imitation." Consumers will also find label statements of the specified optional ingredients used in particular brands; for example, "pectin and methylcellulose added" or "with added spice extract," or "(name of spice) added."

These standards become effective ninety days after October 31, 1959, unless they are stayed by legal objections from persons adversely affected.

Grading of Butter to Be Revised. The USDA has announced that standards for grades of butter are being revised to become effective early in 1960. The revision, prepared by the Dairy Division of the Agricultural Marketing Service in cooperation with industry representatives, regulatory officials, and college workers, represents a general tightening of present standards.

Under the new standards, workmanship defects—that is, defects in body, color, and salt characteristics—can only total 1½ points for Grade B butter with an AA flavor rating. Current standards allow 2½ points.

For Grade C butter, workmanship dis-rating can be no more than 1 point, as compared to 1½ points now permissible. Also, certain flavor characteristics which have previously been allowed for U.S. Grade C butter will not be included in the revised standards.

Also, three new provisions are included in the revised standards. A U.S. grade may not be assigned if the butter fails to meet minimum requirements for U.S. Grade C or U.S. 89 score; if the plant producing the butter does not use satisfactory manufacturing practices; or, if and when tested, the butter is found to be deficient in milk fat. Butter with excessive workmanship defects can only be given a flavor rating. The new standards will also define in detail the various workmanship defects according to intensity or degree.

In 1958, the USDA graded 968 million lb. butter. Of this, 164 million lb. (about 12 per cent of total U.S. production) was packaged for consumers and identified with the U.S. grade mark. Under the grading program, labeling of consumer butter has increased nearly 80 per cent in the past five years.

Safe Chemicals for Foods. The *Federal Register* for November 20, 1959 listed 182 food chemicals which have been found safe for use in foods by the Food and Drug Administration. Manufacturers who use these food chemicals need not furnish further proof of their safety. The list includes: 28 preservatives, 37 buffers and neutralizing agents, 9 emulsifiers, 5 non-nutritive sweeteners, 35 nutrients, 29 sequestrants, 4 stabilizers, 5 anticaking agents, and 30 multipurpose products.

The following foods will be in plentiful supply during January, according to the USDA:

Apples
Cranberries
Eggs
Fats and oils
Onions
Oranges
Raisins
Sweet Potatoes

Frozen Foods for a "Happy New Year." In January, 1960, the National

WHY SHOULD THE VITAMIN C CONTENT OF FRUIT AND VEGETABLE JUICES BE STANDARDIZED?

Because nutrition reports disclose that —

- **Vitamin C deficiencies exist throughout the country***
- **Scurvy has not disappeared from the United States***

Proof of deficiencies among adults and children. You should know these facts!* Diet surveys from Maine and Vermont, New York, Illinois, New Mexico, Oregon, West Virginia, and Texas show a definite pattern of inadequate vitamin C intake. These studies covered grade school and high school children, college men and women.

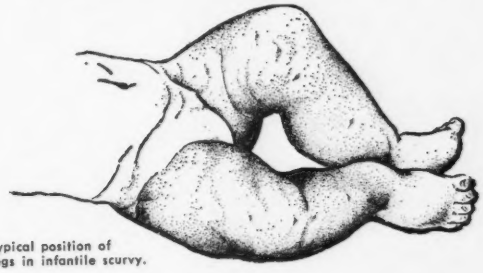
Spongy, swollen gums symptomatic of scurvy.

From these studies* of dietary habits and physical conditions there is considerable proof that many of the children and adults covered by survey have actual, physical symptoms of vitamin C deficiency.

Infantile scurvy. Scurvy* occurs, even today, among infants who are artificially fed. Fortunately the disease may be cured by the administration of vitamin C. How much more sensible it is to prevent it by supplying these bottle-fed infants with the daily allowance of 30 milligrams of vitamin C as recommended by the Food and Nutrition Board of the National Research Council for children under one year of age.

Symptoms of infantile scurvy are fretfulness and fear of being touched.

These bottle-fed infants, unless receiving a pediatric prescription containing vitamin C, are largely dependent on supplemental ascorbic acid which they receive from fruit or vegetable juices. Unless fortified with vitamin C many of the processed juices may not supply these babies with adequate quantities of this essential element.



Typical position of legs in infantile scurvy.

What can be done? Because of the increasing evidence that American diets are deficient in vitamin C, leading nutrition experts believe that processed fruit and vegetable juices, on which the public is so reliant for its supply of this necessary vitamin, should contain the "Vital Ingredient."

The Vital Ingredient of any processed fruit or vegetable juice is a *dependable* and *adequate* supply of vitamin C. You can give your juice this ingredient by *standardizing its vitamin C content*. The processing is simple and the new low cost of ascorbic acid makes juice standardization more attractive than ever.

With ascorbic acid available *by the tons* at extremely modest cost fruit and vegetable juices can have a standardized vitamin C content for the better protection of the nation's health and well-being.

*Statements are based on documented reports. References on request.

Illustrations after photographs in The Vitamins in Medicine by Bicknell and Prescott, Third Edition, published by Grune & Stratton, Inc., New York.

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Association of Frozen Food Packers suggests that the following foods be featured in January, as they are expected to be generally available, economical, and ready to give interesting variety to menus.

Fruits and Juices

APPLES—use them spiced or minted to accompany meat

APRICOTS—use for favorite desserts, such as pies, turnovers, tarts, and upside-down cakes

CONCENTRATED CITRUS JUICES—so easy to serve and so labor-saving

PRECOOKED DESSERTS — frozen fruit pastries of all kinds, as well as frozen cakes, can also save labor cost

RASPBERRIES—serve as the bright color contrast in fruit salads and fruit cups; or, make raspberry pie or tarts a menu specialty

STRAWBERRIES—as whole, halves, or sliced, frozen strawberries are also popular favorites

Vegetables

ASPARAGUS, SPEARS, CUTS, AND TIPS—asparagus spears on toast make an apt luncheon entrée; cuts and tips, used with creamed turkey, ham, seafood, or eggs, can also give luncheon menus a lift

BEANS, GREEN—a favorite, but be sure to cook in moderate-size batches so beans will not stand on the steam table and become overcooked

CORN, CUT—add a touch of sugar while cooking if desired (none is added in freezing); then serve with a touch of pimiento to emphasize the golden color

PEAS AND CARROTS—vitamin A-rich, according to nutrition studies, these combined vegetables furnish color on a plate

POTATO PRODUCTS—come in many forms to give menu variety without adding to labor cost

SPINACH—also useful in providing color; creamed spinach, lightly flavored with nutmeg, is popular

Ellen H. Richards Honored. As a climax to the activities of the American Home Economics Association in celebrating its fiftieth year, the birthday of Mrs. Ellen H. Richards, first president, was observed by home economists throughout the nation on December 3. Mrs. Richards, born in 1842, according to her biographer, Caroline L. Hunt, "more than any other person in America contributed to the upbuilding of that institution where boys and girls are trained into useful citizenship—the home."

Mrs. Richards was the first woman graduate and first woman faculty member of the Massachusetts Institute of Technology, having previously graduated from Vassar College. At MIT she became an expert water analyst and later a teacher of sanitary chemistry. In 1928, a bronze plaque was unveiled at MIT in her honor.

Through her teaching, writing, and lecturing, she endeavored to bring the knowledge of improved living to the public, and in 1899, she joined in inaugurating the Lake Placid Conferences on Home Economics. These grew into the American Home Economics Association, which was formally organized on January 1, 1909, with Mrs. Richards as President. From a charter membership of 7,000, the Association has grown to include more than 25,000 home economists.

Nutrition Conference to Be Held in Georgia. The second "Better Foods for Better Nutrition Conference" will be held at the University of Georgia, Athens, March 3 and 4, under the joint sponsorship of the Divisions of Foods and Nutrition and Food Processing. The program will be planned for persons engaged in research, extension and teaching of foods and nutrition or food technology, home economists in business, school lunch supervisors, dietitians, public health nutritionists, and handlers and processors of foods.

Topics to be discussed will include: "Food Selection Outside the Home"; "Why Fortify Foods?"; "Foods for Shelter Storage"; "Telling the Story of Better Foods for Better Nutrition"; and "Changes in Food Habits and Their Effects on Nutritional Status." The roster of speakers will include such nationally recognized authorities as Dr. Charles Glen King, Dr. E. Neige Todhunter, Dr. J. G. Woodroof, Agnes Olmstead, and Lena Sturgess.

Field Trip by Air for Dietetic Interns. On September 29, dietetic interns at Barnes Hospital, St. Louis, enjoyed what was perhaps a unique field trip. They were flown by T.W.A. from St. Louis to Kansas City for a day's visit to the Mid-American Regional Restaurant Convention and a tour through the kitchens where T.W.A. flight meals are prepared.

Aboard the airliner to Kansas City, interns observed the airline's coffee service. At the exhibition hall, where the convention was being held, they toured the booths of exhibitors showing new equipment and food products. A highlight of the convention visit was an address by Helen Corbitt of Neiman-Marcus, Dallas, from whom the interns learned much about merchandising techniques.

From the convention, they were taken to the plant of Gilbert Foods, where T.W.A. flight meals are prepared, and where the interns could see the loading of trays. On returning to the airport, before flying back to St. Louis, the interns were shown how flight food is loaded on planes and the airline kitchen on an airliner was demonstrated.

Nutrition Booklet for Spanish-Speaking Homemakers. With an increasing number of Puerto Rican and Mexican families in Cook County, Illinois, the County Department of Welfare felt the need of a nutrition publication to help the homemakers of such families. Now, Ethel Ugelow,

WHY IS RY-KRISP THE WORLD'S MOST FAMOUS DIET CRACKER?

Because Ry-Krisp contains only 21 calories per double-square cracker. Because Ry-Krisp is made with high-quality whole-grain rye, salt and water—nothing else. These are the reasons that Ry-Krisp is perfect for low-calorie diets, as well as milk-free, egg-free and wheat-free diets. Send now for Ralston's free Dietitian's Kit. It contains valuable food facts and diet information (including allergy diets) plus a quantity order form.

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CITY STATE

Consultant in the Home Economics Unit, has prepared a leaflet in both Spanish and English, "You and Your Family's Food." The material has been adapted to the eating patterns of Puerto Ricans and Mexicans and provides practical information on nutrition and foods based on the "Essential 4" with menus, recipes, and shopping tips of special interest to persons living on a limited budget. The meals and shopping list were planned for a family of four, using current public assistance food figures. Publication of the leaflet was made possible through the cooperation of the Chicago Heart Association.

Sample copies may be requested from: Home Economics Unit, Cook County Department of Welfare, Room 510, 60 West Washington Street, Chicago 2.

Booklets on Frozen Foods. Newly issued are two booklets on frozen foods, both prepared by Miriam E. Lowenberg, Ph.D., and Eva D. Wilson, Ph.D. "Nutrients in Frozen Foods" is the title of the first one, which is a recompilation of data reported by the Wisconsin Alumni Research Foundation, specially geared to be readily usable by dietitians and nutritionists. Data are on an "as purchased" basis for frozen fruits and vegetables and on an "as prepared for serving" basis for frozen concentrated juices. Included are figures on protein, fat, total carbohydrate, calcium, iron, vitamin A, thiamine, riboflavin, niacin, and total ascorbic acid. In a special table, data on nutrient retention during cooking for twenty frozen vegetables are presented.

The second booklet, "Frozen Foods for Family Meals," by the same authors is a supplement to the first and is designed for homemakers' use. The contents include functions of food nutrients; a chart of foods to use each day for all age groups which furnishes basic nutritional facts on well planned meals; frozen fruit, juice, and vegetable sources of vitamins and minerals tabulated in decreasing order of significance; and a suggested menu pattern. It is described as a "distributional booklet that should prove helpful to clinical and therapeutic dietitians in advising patients on matters of good, everyday nutrition."

Copies of both booklets may be requested from the National Association of Frozen Food Packers, 919—18th Street, N.W., Washington 6, D. C.

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Walker's unique facilities provide you with "custom-color" decorating of finest quality and fast delivery. Never before have you been offered such flexibility in shapes and designs... at such reasonable prices.
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See your Walker dealer, or write us.
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Nutrition Education Booklet. *Teaching Nutrition in the Elementary Schools* is the title of a new booklet on nutrition education for teachers written by Margaret A. Dunham and Mary Alice Banks for The American Association for Health, Physical Education, and Recreation. The contents are divided into three sections: the first presents basic information on nutrition; the second section includes activities for nutrition education suitable for (a) the primary level and (b) the intermediate level; and the third lists sources of information and teaching aids. In the first section on basic nutrition information, the four food groups are discussed; nutrients are listed, together with their functions and important food sources; meal planning for the day is explained; and the important food needs for children are outlined.

Single copies of this booklet may be ordered for 75 cents each from The American Association for Health, Physical Education, and Recreation, 1201—16th Street, N.W., Washington 6, D. C.

New WHO Report. *Methods of Radiochemical Analysis* has recently been issued as a Joint WHO/FAO Expert Committee Report. In it are detailed "a selection of basic recommended methods and those thought to be most practical for laboratories new to radio-chemical work." In most cases, two or more methods are given for the determination of each radionuclide—one a highly sensitive method, the others usually less sensitive and less accurate, but providing more rapid results. Reference is also made to other useful methods. Analytical procedures are described for determining: tritium, strontium, ruthenium, iodine, cesium, polonium, radon,

PROTEIN

essential in body processes

Among nutrients, proteins play a leading role in body processes . . . respiration, digestion, metabolism, reproduction, growth . . . and even awareness of and reaction to the world around us.

Each cell contains its own special proteins . . . made up of countless arrangements of about 25 different amino acids . . . combined to make some function possible. Some proteins work with vitamins and minerals as enzyme systems . . . breaking down food for energy and building material . . . then converting and synthesizing new substances needed for life and activity. Others form a wide variety of tissues with specialized functions . . . made possible by the nature of the proteins themselves.

The heart can beat to pump blood because the protein in muscle contracts and expands. Connective tissue holds the framework of the body together because the protein is elastic and acts like a taut rubber band. Eyes see . . . fear causes fright or flight . . . oxygen reaches cells . . . blood clots . . . wounds heal . . . all with the aid of specialized proteins.

The diet must provide the building materials for all vital proteins . . . 8 essential amino acids, preformed . . . and enough nitrogen to form all the others. These are most readily obtained from foods of animal origin . . . milk, meat, eggs, poultry and fish . . . combined in tasty meals with foods of plant origin . . . all kinds of grains in breads and cereals . . . vegetables and fruits.

Milk is man's first dietary source of protein . . . provided in desirable ratio with other nutrients with which protein works . . . carbohydrate, fat, essential fatty acids, vitamins, and minerals . . . to sustain growth and health in the infant while new functions are developing for adaptation to a new environment.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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radium, thorium, uranium, plutonium, and gross radio-activity. Suitable sampling techniques are also recommended, and instrumentation required for carrying out radio-chemical analysis is discussed. The Committee reviews the various sources of radioactive contamination and discusses the basic principles that must be considered in devising methods of evaluation of environmental contamination and internal contamination of the human body. Tables of maximum permissible concentrations of radionuclides in air and water—based on the recommendations of the International Commission on Radiological Protection—are also included.

This publication is World Health Organization Technical Report Series No. 173 and FAO Atomic Energy Series No. 1. Copies may be ordered from the International Documents Service, Columbia University Press, 2960 Broadway, New York 27, for $1 each.

USDA Releases. A new, energy-saving kitchen, featuring a storage cabinet designed for baking and mixing supplies and utensils to be within easy-to-reach area, has been developed by the USDA's Agricultural Research Center at Beltsville, Maryland. Although the design is especially for the homemaker who, because of age or disability, must conserve energy, its many work-saving features could be adapted to any home kitchen. Single copies of "The Beltsville Energy-Saving Kitchen, Design No. 2" (Leaflet 463) are available from the Office of Information, U.S. Department of Agriculture, Washington 25, D. C.

A second new release from the USDA, "Poultry Inspection—A Consumer's Safeguard," is a six-panel folder which explains and illustrates the federal poultry inspection program and some typical packages of poultry and poultry products bearing the mark are illustrated, as well as scenes in a poultry processing plant operating under federal inspection. A mandatory poultry inspection law has been in effect since January 1959. with respect to poultry and poultry products for sale in interstate and foreign commerce. Single free copies may be requested from the Office of Information, U.S. Department of Agriculture, Washington 25, D. C.

Army Personnel. Captains Beulah C. Lumpkin and Julia C. Neale have received Regular Army appointments in the Army Medical Specialist Corps.

Frances Taylor and Louise Stiles have both been promoted from Captain to Major.

Appointments and Active Duty

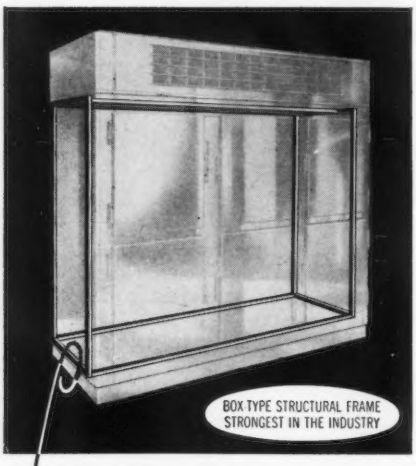
Capt. Jean Cooley
2nd. Lt. Katie A. Boyd
2nd. Lt. Virginia Bryson
2nd. Lt. Diana Chee
2nd. Lt. Mary D. Cole
2nd. Lt. Alan Cork
2nd. Lt. Christine Ellis
2nd. Lt. Joan Fox
2nd. Lt. Myrna Henningsen
2nd. Lt. Frances Iacoboni
2nd. Lt. Janet Jolin
2nd. Lt. Alice Krutsinger
2nd. Lt. Linda Lay
2nd. Lt. Barbara Lynch
2nd. Lt. Patricia Murray
2nd. Lt. Virginia Parrish
2nd. Lt. Ann Ritchie
2nd. Lt. Donna Schrempp
2nd. Lt. Elaine Schultz
2nd. Lt. Joan Sevick
2nd. Lt. Nancy Spragg
2nd. Lt. Theodocia Tempel
2nd. Lt. Suzanne Weis
2nd. Lt. Marian Willis

Separations

Capt. Patricia Marlowe
Capt. Zetta Thomas
1st. Lt. Alice Longmore
1st. Lt. June Rhodes
1st. Lt. Brenda Rowley
1st. Lt. Ketty Stuart
1st. Lt. Betty Vannoy
1st. Lt. Florida Wilder
2nd. Lt. Marilyn S. Reynolds
2nd. Lt. Barbara Sutton

News of State Associations

Alabama Dietetic Association. Alabama dietitians held their annual fall



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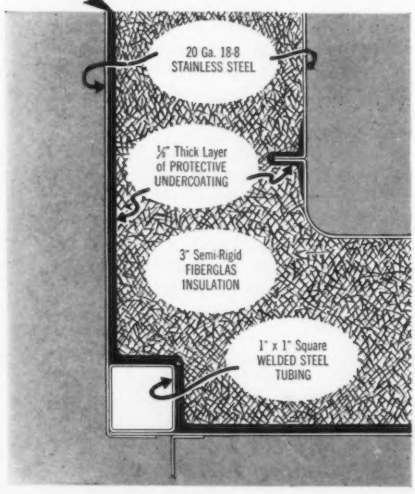

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The right size can means folding-money savings!

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meeting in Montgomery on October 23 and 24. The program included:

"Planning and Working Together"—Lem Coley, Personnel Director, Russell Manufacturing Company

"Diet and Dental Health"—Dr. Sidney B. Finn, Professor of Dentistry and Director, Children's Clinics, School of Dentistry, University of Alabama Medical Center

"Foods and Nutrition Research in Alabama"—Dr. Frieda L. Meyer and Kathleen R. Stitt, University of Alabama; and Mildred S. Van de Mark, Alabama Polytechnic Institute.

Massachusetts Dietetic Association. On November 18, the Massachusetts Dietetic Association co-sponsored with the Massachusetts League for Nursing and Boston University an all-day conference on "Nutrition in Nursing Education." The program included a report on "Experiments within the Basic Nursing Curriculum" by Sister Winifred, Director, Catherine Babourey School of Nursing, Dorchester; as well as an open discussion of "Where We Have Been and Where We Are Going in Nutrition Education in Nursing."

Michigan Dietetic Association. The *Detroit Dietetic Association* has planned a varied program for the year. In September, Ronald Scott, investment analyst, spoke on "Stock Marketing," while in December, N. L. Goodwin, M.D., LL.D., Grace Hospital, discussed "Legal Aspects of Medicine." A panel discussion of "Community Nutrition Services," was the feature of the October meeting. In the new year meetings will start with a joint program in January with the Foods and Nutrition Division of the American Red Cross. In March, Alys Schnoor, Wayne State University, will speak on "Personnel Management," and in April, the group will enjoy a tour of the dietary department of Women's Hospital. Officers of the Detroit Association this year are: President, Irene Lionas, Henry Ford Hospital; President-Elect, Margaret Sabin McAree, Greenfield-Mills Restaurant Company; Vice-President, Betty Navin, Central Unit, Grace Hospital; Recording Secretary, Marilyn Grigg, Highland Park General Hospital; Corresponding Secretary, Elaine Stanell, Greenfield-Mills Restaurant Company; and Treasurer, Gertrude Jackson, Providence Hospital.

Missouri Dietetic Association. On November 20, the Missouri Dietetic Association met in Columbia at the University of Missouri Medical Center. The program featured:

"Research Points the Way"—Margaret Mangel, Ph.D., Head, Department of Home Economics, University of Missouri, Columbia

"Strontium-90—What and Where?"—Joseph E. Edmondson, Ph.D., Professor of Dairy Husbandry, University of Missouri

"Man Learns about His Heart Through Centuries"—Charles F. Grabske, M.D., practicing physician, Independence

"There Is a Better Way"—Henrietta Becker, Director of Dietetics, Barnes Hospital, St. Louis

Officers for 1959-60 for the Missouri Association are: President, Helen Starch, Barnes Hospital, St. Louis; President-Elect, Rosemary Burns, Normandy; Secretary, Pattie Hay, Dairy Council of Greater Kansas City, Kansas City, Missouri; and Treasurer, Evelyn Carter, Division of Health, Jefferson City.

Nebraska Dietetic Association. Lincoln was the scene of the fall meeting of the Nebraska Dietetic Association held October 15 in conjunction with the Nebraska Hospital Association. The dietetic program included:

"The Dietitian Looks at Herself—The Inward Look"—Martha Artist, Omaha Public Schools

"The Dietitian Expresses Herself—The Outward Look"—William Lutes, University of Nebraska, Lincoln.

The following new officers were installed at this meeting: President, Mary Carey, Lincoln Dairy Council, Lincoln; President-Elect, Helen Shuput, Clarkson Hospital, Omaha; Sec-

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History of The American Dietetic Association

1917-1959

Mary I. Barber, Editor

This is the first official history of the ADA from its inception in 1917 through 1959. More than being merely a record of the Association, its origin, structure, aims and accomplishments, this new book includes the many personalities that represent its leadership and explores the role of the dietitian from ancient times to the Space Age.

Chapter 1 considers the term "dietitian" historically, and presents a definition which describes the dietitian's responsibilities today. Chapter 2 outlines the history of dietetics from the ancient Ebers papyrus to the present, highlighting the achievements of great figures in the history of nutrition.

Chapter 3 gives an interesting account of the founding of the ADA. Chapters 4 through 7 record by decades the spectacular advances both of the ADA and of the science in general. Chapters 8 through 14 describe the structure of the Association, and the work of the various Committees and Sections devoted to education, community nutrition, diet therapy, etc.

Chapters 15 through 19 cover the history of dietitians in military and government service, the United States Children's Bureau and the role of the Journal of the ADA and the Association's Public Relations Department. Chapter 20 relates the challenging aspects of dietetics in the Space Age.

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• Delicious Heinz Ketchup and Chili Sauce are also packed in No. 10-size cans for use in cooking. Ketchup may also be ordered in new single-serve foil packs that give perfect portion control.

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retary, Maxine Bohaboy, Lincoln General Hospital, Lincoln; and Treasurer, Mabel Krondak, Clarkson Hospital, Omaha.

New Hampshire Dietetic Association. On October 28, the New Hampshire Dietetic Association joined the state Department of Health and the New Hampshire Nurse's Association in sponsoring a nutrition conference for nurses. A feature of the program was a panel discussion with hospital staff members and physicians on "What Do You Expect the Nurse to Know about Nutrition and Diet Therapy?"

Ohio Dietetic Association. Disaster planning has taken the spotlight in the fall activities of both the *Cleveland Dietetic Association* and the *Cincinnati Dietetic Association.* In September, *Cleveland* dietitians participated in a program planned by the Disaster-Relief Committee of the Academy of Medicine which took the form of an outdoor cookout. Its purpose was to teach dietitians and food service volunteers how to feed casualties of a major natural disaster or a war-time attack. All equipment was improvised to cook the meal of stew, biscuits, and fruit cobbler. In November, the *Cincinnati* group sponsored a two-day "Disaster Workshop" jointly with the American Red Cross. Speakers at the first session included a physician, a hospital administrator, and a dietitian—Maj. Katherine Manchester of Brooke Army Hospital, Ft. Sam Houston, Texas. The following day, participants worked on a mock disaster.

Oregon Dietetic Association. October 30 and 31 were the dates of the fall meeting of the Oregon Dietetic Association in Portland. The banquet, which opened the meeting, featured as speaker Dr. Paul Weswig, Oregon State College, who reported on the "Nutritional Survey in Ethiopia." On the following day, the program included:

"Oregon Plans for the 1960 White House Conference on Children and Youth" — Mrs. William Kletzer, Chairman, Governor's Committee on Children and Youth

"What Are Our Responsibilities for Professional Growth?" — a panel discussion with participants covering college food service, the dietetic internship, the first job, and the problems of the recent graduate

"Functional Bowel Distress" — Dr. George A. Boylston

Pennsylvania Dietetic Association. The fall meeting of the Pennsylvania Dietetic Association was held in Harrisburg on November 14. A. June Bricker, Director of Field and Community Health, Metropolitan Life Insurance Company, New York City, was the featured luncheon speaker. Her theme was the importance of adequate communication in the work of the state association, both with the local groups and with The American Dietetic Association. Reports of the A.D.A. Annual Meeting in Los Angeles in August were given, and state section chairmen presented their plans for the year's work.

Special tributes were paid to two retiring members — Anna dePlanter Bowes, former Head, Nutrition Section, Pennsylvania Department of Health and Welfare, and Mary Lyons, former Chief Dietitian, Wernersville State Hospital.

South Carolina Dietetic Association. On November 6 and 7, the South Carolina Dietetic Association met in Columbia. The program included: a discussion of "Coronary Artery Disease" by Dr. Peter C. Bazes, Medical College of South Carolina; a coffee making demonstration by Col. William J. B. Cline, Coffee Brewing Institute; a report on "Association Activities" by Margaret L. Ross, A.D.A. Secretary. Charles S. Davis, Ph.D., President, Winthrop College, as banquet speaker, discussed "Challenges of Education for Women—Present and Future."

Virginia Dietetic Association. The Virginia Dietetic Association met in Williamsburg on November 5 to 7. The program follows:

"Operational Procedures"—James A. Carroll, Army Quartermaster School, Ft. Lee

"Enzyme Deficiency Diseases"—Guy Hollifield, M.D., University of Virginia School of Medicine, Charlottesville

"Electric Measurements of Changing States in Human Beings, Including Electric Measurements of Hypnotic States"—Leonard J. Ravitz, M.D., Eastern State Hospital, Williamsburg

"The Dietitian's Role in the Thermo-Nuclear Age"—Dorothy L. Bovee, American National Red Cross, Washington, D. C.

"Publicity Through Newspapers" — Lewis Warren, Richmond *News-Leader*

"Work Simplification"—Ann Russell, American Institute of Baking, Chicago

Other features of the meeting were a recounting at the banquet of the Association's "First Thirty Years" by Erna Mae Behrend and an educational tour to the commissary which furnishes foods for the restaurants in the restored area, the Motor House Cafeteria, and the Williamsburg Lodge food service.

Association Activities

43rd A.D.A. Annual Meeting. Plan now to attend the 43rd Annual Meeting of The American Dietetic Association to be held in Cleveland, October

HANDBOOK OF ❀ DIET THERAPY ❀

3rd edition by Dorothea F. Turner

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Fifth World-Wide Air Force Conference. Evelyn A. Carpenter, our official representative at the 5th World-Wide Air Force Food Conference held October 20 to 22, 1959, in Marietta, Pennsylvania, has given us an interesting report of this meeting.

The purpose of the conference was to discuss methods and procedures for resolving problems within the Food Service, Subsistence supply, and Commissary operations areas, and to promote interest and increase the effectiveness and efficiency of the Air Force Food Service Program. Dietitians played an important part in planning the conference.

It was clear from the interest and enthusiasm of those attending that food plays a most important part in the Air Force, both on the base and in flight. The problems discussed were those most commonly found in any food service, yet there were some peculiar to the military.

Among topics discussed were: "The Army Outlook on Food and Commissary," "Department of the Navy Looks at the Commissary Operation," "In-Flight Feeding," "Convenience Type Foods," "Commissary Financial Improvement," and "Commissary Merchandising Techniques." In addition to speakers, several food service panels were presented on feeding, accounting, construction and equipment, and manpower administration.

Colonel Nathan T. Folwell, USAF, Chief, Air Force Services Office, and others expressed appreciation that an A.D.A. representative attended.

Food Service Supervisors. Myrtle Van Horne, Project Director of the A.D.A. Food Service Supervisor Program, was our official representative at the meeting of the Advisory Committee of the Hospital Food Service Supervisors Course at Michigan State University on December 4, 1959 in East Lansing, Michigan.

National Health Council. Our Association has three appointed delegates to the National Health Council: Mary Reeves, Lucille M. Refshauge, and Nelda Ross Larsson. Mrs. Larsson attended a meeting of the Board of Directors on October 30, 1959, in New York City. She is currently representing A.D.A. on the Advisory Committee to the Program Planning Committee of the Health Forum on Aging of the National Health Council.

Food Protection Committee. A joint meeting of the Industrial Liaison Panel and the Food Protection Committee of the National Research Council was held in Washington, D.C., on December 9 and 10, 1959. Dr. Margaret M. Ohlson was our official representative.

Recent Library Additions. The following publications have been added to the Lulu Graves Memorial Library in the A.D.A. office, and are available for loan to members:

"Diet Manual" for Cincinnati General Hospital

"Adjustments Commonly Made in the Exchange System for Diabetic Diets"—prepared as a project by the Diet Therapy Section, Greater New York Dietetic Association

"Hawaii Diet Manual," 3rd edition, prepared by the Diet Therapy Section, Hawaii Dietetic Association

"Idaho Diet Manual," 2nd edition, prepared by the Diet Manual Committee of the Idaho Dietetic Association in cooperation with the Idaho Department of Health and endorsed by the Idaho State Medical Association and Idaho Hospital Association

"Revised Diet Manual" for the University of Missouri Medical Center

Obituaries

Anita Birmingham. The A.D.A. office has received word of the death of Anita Birmingham in Seattle. Mrs. Birmingham had been on the staff of King County Hospital, Seattle; served as an Army dietitian during World War II; and was formerly Director of the Dairy Council in Roanoke, Virginia. She had been one of the active

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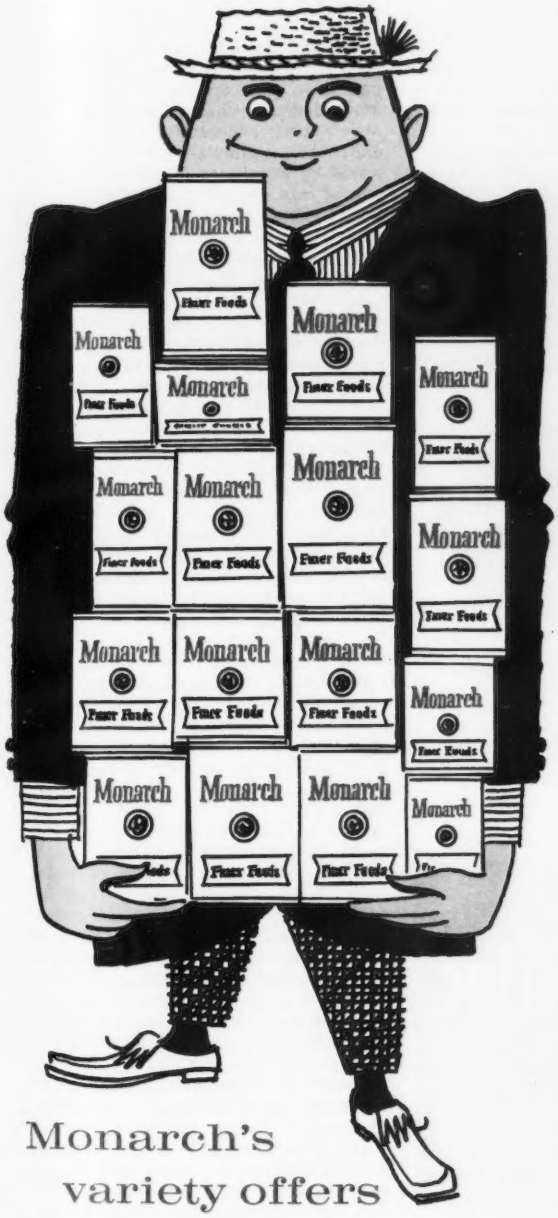

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members of the Washington State Dietetic Association since her return to Seattle several years ago. She became a member of A.D.A. in 1943.

Sister Mary Edwarda Maher. The Association has been notified of the recent death of Sister Mary Edwarda Maher, who had been on the staff of Mercy Hospital, Springfield, Missouri. Sister Edwarda had also served as Teaching Dietitian, St. Edward Mercy Hospital, Ft. Smith, Arkansas; Dietitian, St. John's Hospital, Springfield, Missouri; and Dietitian, St. John's Hospital, St. Louis, since she had become a member of the Association in September, 1944.

News of Products and Services

Lily-Tulip Cup Corporation has incorporated safety slogans in the design for its 9-oz. cold drink vending cup. Three cups, each with two designs on the front and back panel, are packed alternately in each tube, making a total of six individual safety slogan messages. Vended in such a manner that successive patrons receive different safety messages, they are intended to drive home to the worker the importance of safety.

A revision of the leaflet, "Of Recipes . . . and Can Sizes," from *National Canners Association* brings up to date the latest data on can and jar sizes used for numerous foods. Home economists in the canning industry have simplified the nomenclature for consumer use. Industry terms—"No. 2 can," for example—are now designated by weight or fluid ounces or by use of cup identification. Tables give both the industry and consumer terms. The last page of the four-page folder lists the homemakers' choice sizes of canned fruits, juices, and vegetables.

Chocolate joins lemon and strawberry among the flavors available to the volume feeding industry under the Jell-O brand of *General Foods*. The new chocolate chiffon pie filling is made by adding sugar and milk. Packed in No. 2 cans, each can makes enough filling for nine pies. Variations from the basic filling include: chiffon cream pudding, peanut butter chiffon squares, mocha chiffon pie, and double chocolate chiffon squares.

The Maxwell House Vend Roast coffee, developed for "fresh brew" vending equipment by *General Foods*, is now handled through GF's coffee distributors who serve the volume feeding industry, supplanting the "manufacturer to vending operator" former distribution practice. Soluble vending products and the 4-oz. Vend Roast tins will continue to be channeled from manufacturer to operator.

Using a softer flour, a finer sugar, and a new creamier shortening, the reformulation of "Betty Crocker's Cake Mix" from *General Mills* results in a higher, lighter, and more moist cake. With one-step mixing (all ingredients go into the bowl at once), mixing time takes 4 min. The cake has greater volume, absorbs and holds moisture, and keeps fresh longer. All eight flavors are available in the new mix: White, Yellow, Devil's Food, Chocolate Malt, Black Walnut, Marble, Honey Spice, and Peanut Delight.

"Betty Crocker's Instant Mashed Potatoes," also from *General Mills*, are made from specially selected mashing potatoes and waterless-cooked to preserve vitamins, minerals, flavor, and texture. They are prepared for serving in a few minutes with the addition of water or milk.

Swartzbaugh Manufacturing Company has developed a cold food loader for centralized food service systems to be used with its Mealmobile and Hot Food Assembly Unit. The food loader consists of two separate units which may be joined together for a complete cold food assembly line. The non-food section of the loader (CL-200) is designed with saucer, bread plate, and tray lifters dispensing at serving level. In addition, this section holds tray mats, silverware, napkins, condiments, tea bags, instant chocolate, sugar, jelly, and mayonnaise. The lower left-hand section is equipped with refrigerator-type racks for storage of non-food items. The food section of the loader (CL-300) accommodates 18- by 21-in. bun trays with shelves on the superstructure providing space for an

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additional eight trays, bringing capacity to at least one hundred meals.

Indianhead brand boneless, shankless, skinless, fully cooked ham that can be served hot or cold is a new addition to *The Rath Packing Company* line of hams. Hickory-smoked, wrapped in aluminum foil, and weighing 7- to 9-lb. with smooth conformation and no string marks, the ham is suggested for institutional use.

Rath has also introduced a new, all-purpose, hydrogenated shortening, specially designed for institutional use. Prepared from meat and vegetable fats, "Maitre D'," has a smoke point of 450°F. for use in frying. It may also be used in pastries and pie crusts. It is packaged in 110- and 400-lb. drums and in 50-lb. tins and cubes.

The acquisition of manufacturing and sales rights of the Kingston Disintegrator from Kingston Products Company by *Food Machinery and Chemical Corporation* has completed FMC's line of waste disposers. It now offers units ranging from ½ to 5 hp. The Kingston Disintegrator is a 5-hp. food waste disposer designed for institutional use.

Gerber Products Company is offering a complete line of infant foods with the introduction of its new milk formula product, Modilac. Sterilized with a new flash-heat quick-cool method, Modilac may be poured directly into sterilized bottles, then capped for immediate feeding or refrigeration. Made of nonfat fluid milk, a dextrin-maltose-dextrose mixture, and corn oil, it is supplemented with vitamins A, B_1, and D, ascorbic acid, and thiamine. A special carbohydrate modifier promotes uniform blood-sugar levels between feedings and minimizes fermentation in the digestive tract. The corn oil provides unsaturated fatty acids.

A new gas broiler, "Hustler 99," has been introduced by the *Garland Division* of Welbilt Corporation. Four individually controlled burners fire a bed of briquettes for radiant broiling. "Flare-Control," developed by Garland, is a system of eight rows of ports which direct streams of super-heated air across the briquettes to control flare from dripping fat. The grid is 26 in. by 26 in. and may be raised or lowered for precise control in broiling meats rare to well done. A large compartment beneath the broiler may be provided with doors. The unit is available without compartments for installation on counter tops and cabinet bases. A choice of three finishes—black baked enamel, porcelain enamel, or stainless steel—is offered. Compartment doors are available in yellow or coppertone porcelain enamel.

The *Garland Division* of Welbilt Corporation also announced colored porcelain enamel finishes on oven and compartment doors for its gas and electric equipment. A choice of bright yellow or coppertone is offered, contrasted with black baked enamel, blue-black porcelain enamel, and stainless steel finishes.

A pan coating called "Vegalene," originally developed by *Par-Way Co.* for chain bakeries, prevents all foods from sticking to the utensil in which it is cooked. Now being introduced to institutional kitchens, Vegalene is a blend of refined vegetable oils, compounded lecithin, and vegetable stabilizer. When spread over the cooking surface, the lecithin will fill up the pores, will not break down with heat, has high smoke and flash points, will not form carbon residue under ordinary cooking, frying, and baking temperatures, and is also high in antioxidant properties which prevent rancidity. Vegalene complies with food and drug laws and is suggested for fat-free diets.

A new "Cut-Rite" composition cutting board, approved by USDA, is offered by *Park Rubber Co., Inc.* The board is made of dense composition material which will not absorb liquids or food particles. It will not crack, split, or chip when used in boning, chopping, slicing, or dicing work. Both sides of the board may be used.

Ac'cent International devotes the October issue of its *News Notes* to recipes using Sauce-Quik, the all-purpose package sauce base. This six-page, illustrated folder of recipes for basic and beautiful, hot and cold, thin and thick, and special and sweet sauces gives the amount of basic sauce to start with, what to add, and serving combinations in 1- to 3-qt. proportions.

Materials Available From The American Dietetic Association

Embroidered cloth emblems, green on white, bearing the seal of The American Dietetic Association, to be worn on the blouse of the uniform, are available to members and to dietetic interns at the following prices:

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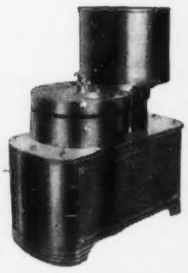

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